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# The impact of factors on trajectories that lead to non-completion of high school and lack of post-secondary education among those with high reading competencies at age 15

REPORT

by:

**Victor Thiessen**

Meta Research and Communications  
and Dalhousie University

prepared for:

**Learning Policy Directorate**  
Strategic Policy and Research

**November 2007**





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# *Executive Summary*

This report analyses the educational pathways of 16,242 Canadian youth who at age 15 scored at or above Level 3--the level considered necessary for effective functioning in a knowledge-based society. For this purpose, it utilizes cycles 1 to 3 of the Canadian longitudinal Youth in Transition Survey (YITS). Despite their relatively high reading achievement scores, almost three in ten (29%) failed to pursue postsecondary education by the age of 19, but, as might be expected, the most popular pathway for this group of high achievers is a university education, with 37% of them enrolled in university.

Both the literature review and the pattern of findings in this report reveal that educational pathways can be ordered along a continuum representing increasingly better pathways, bounded by early school leaving at one end and participation in university programs at the other. For all educational outcomes, high school academic performance is important. The question becomes two-fold: Why were some young people with solid reading achievement unable to convert their reading ability into solid marks, and what additional factors besides academic performance are implicated in the process of poor educational pathways?

Most anomalous are young people who failed to complete high school by the age of 19 despite having high reading achievement scores at age 15. This group is one that appears not to have put sufficient effort into their academic work; that is, they did not do as much homework and were more likely to have skipped classes. Further, peers appear to exert more influence on them than do their parents. This is manifested by such things as their drinking and marijuana use, the irrelevance of their parents' educational aspirations, and indeed even their own aspirations. It appears that the presence of two biological parents is an important buffer that facilitates completing high school, since those not living in such a family structure were substantially more likely to fail to even obtain a high school completion certificate. Likewise, immigrant parents are better able to ensure that their children do not drop out of school. Additionally, youth who failed to complete high school did not avail themselves of school-provided career- and educationally-preparatory activities, such as meeting with school guidance counselors or completing questionnaires to ascertain their interests and abilities.

This research also documented that a number of factors that one might think could act as barriers to fulfilling one's educational potential were nevertheless not important. Parental social, cultural and economic resources, such as income and the provision of home computers were not significantly lower among high school non-completers than among those who completed high school. Participation in extracurricular activities might be thought of as increasing one's attachment to school, but such participation did not increase the likelihood of completing high school. The literature also suggested that intensive paid employment is a symptom of the process of dropping out of school. Yet among these high reading achievers, working 20 hours or more per week was not a factor contributing to non-completion of high school.

Completing high school but deciding against postsecondary education (PSE) also represents an anomalous educational trajectory for high reading achievers, albeit not as severe as that of failing to complete high school. The analyses uncovered several important factors that differentiate between those who curtailed their education with a high school diploma compared to those who participated in non-university forms of PSE. First, parental cultural and social capital is important for understanding these educational outcomes. Those who did not continue had less access to home computers, had parents with lower levels of education and, perhaps as a result of this, did not attach as much importance to education. However, household income was not a factor for these transitions. Peers continue to be important, but with an interesting refinement: Having a network of friends who saw the value of education and planned to pursue PSE increased the likelihood of young people to pursue further education, but there was no significant negative influence of peers. That is, alcohol and marijuana/hash use was unrelated to the decision to pursue non-university PSE. Not participating in extracurricular activities marginally increased the likelihood of terminating one's education with a high school diploma. Intensive paid employment had a deleterious effect, with young people employed for more than 20 hours per week being less likely to pursue PSE. None of the other socio-demographic variables except gender differentiate between high school graduates and participants of a non-university PSE.

Especially sharp contrasts mark those who terminated their education with a high school diploma compared to those who enrolled in university. All aspects of high school experiences significantly differentiate between these two educational pathways. Those who curtailed their education with a high school diploma put in less academic effort, had less parental and peer educational supports, were more likely to drink or consume marijuana, had lower educational aspirations, were less likely to have participated in extracurricular activities and more likely to have paid employment of 20 hours or more during the school year. They were also somewhat more likely to have changed high school, which might imply a loss of social capital.

All components of parental capital proved to be important for the contrast between attending university versus not pursuing any PSE: young people who did not pursue university education lived in lower income households, had parents with less education, and had less access to home computers than did those who enrolled in university. Likewise, immigrant and visible minority students were more likely to pursue a university education, suggesting that the educational culture in such homes is more conducive to young people being able to fulfill their educational potential.

This paper documents that the factors that led to desirable pathways among youth with competent reading ability are on the whole similar to the ones that affect educational pathways irrespective of reading ability. Few factors are salient for youth with high reading ability but not for youth with low reading ability.

The educational pathways that young people find themselves on have their roots early in life. At the family level, parental human capital, in the form of their own educational attainment, has enduring positive effects. Their economic capital (income) has a smaller effect and operates primarily through greater ability to equip their home with computers. The hopes and aspirations that parents have for their children's education have strong consequences for the likelihood of their offspring participating in PSE, both at university and in other educational institutions. Family structure leaves its imprint, with children not

living with both biological parents having the poorest educational outcomes. These effects are not due simply to resource dilution, since they persist despite a full array of statistical controls. Of some note is that visible minority youth achieve superior educational outcomes, as do immigrant youth, both of whom are especially likely to attend university. In line with previous research, females are substantially more likely to be on better educational pathways than are their male counterparts. In other words, females with solid reading achievements are more likely to fulfill their academic potential than are males of equal reading achievement: they are less likely to fail to complete high school and more likely to pursue both university and non-university forms of PSE, even after controlling for academic performance.

Educational outcomes are more than just a matter of home advantages. The student's own beliefs, behaviours, and decisions matter. The analyses show that two components of solid academic performance in school, especially in the final year of secondary school, are of paramount significance: overall marks and whether these subjects were taken at a university-preparatory level. Additionally, anything students do to improve their academic performance translates directly into better educational trajectories. Of some significance in this regard is the fact that earlier academic performance is not as consequential as later performance, although the earlier performance leaves its mark and cannot be totally erased, especially with respect to the likelihood of participating in a university program. Like their parents, the students' own aspirations are vital, and have an effect additional to that of their parents.

Numerous demographic, familial, individual, and school-level factors are implicated in the educational transitions of young people with high reading achievement scores. They reinforce the conclusion that, while having high reading achievement is indeed an advantage for these young people's ability to achieve their high aspirations, there are also many additional factors, some of which result in these students' failure to materialize their ambitions.



# *1. Introduction*

Educational aspirations of Canadian young people have been rising; at the time of the baseline Youth in Transition Survey (YITS) survey in 2000, fewer than one in a hundred said they would be satisfied with less than a high school certificate while two thirds aspired to obtain at least one university degree (Thiessen and Looker 2004). The proportion with university aspirations was even higher among those with high reading achievement. What accounts for the fact that substantial proportions of them failed to fulfill their ambitions?

It should be kept in mind that academic performance is arguably the most important factor for predicting educational pathways. This means that certain pathways are typical, and others atypical. One typical pathway is that high performers pursue postsecondary education (PSE), especially in university programs. Conversely, an “anomalous” pathway is one where high performers drop out of high school, or perhaps complete high school but fail to enroll in PSE programs. Yet, as will be documented below, solid academic performance does not guarantee desirable educational trajectories. Initial high achievers may encounter a variety of obstacles over the subsequent years. Likewise, they may make decisions that ultimately curtail their education, such as not participating in extracurricular or other adult-supervised activities, surrounding themselves with peers who have limited attachment to school or participate in socially unacceptable behaviours. Some may become “internet addicts” (De Angeles 2000). As a result, substantial minorities of young people fail to graduate from high school or to participate in PSE despite solid earlier academic performance.

Longitudinal research documents substantial flux in student attitudes, behaviours, and academic performance over time. Measurements taken later in time prove to have stronger effects than those taken earlier, suggesting that prior positive factors can be undermined by later events (Marjoribanks 2003). To capture these processes requires longitudinal data, such as YITS, that permits one to track educational pathways over time.

No single conceptual framework suffices for understanding the educational pathways young people take, since their determinants involve connections between biological, cognitive, psychological, sociological, economic, and cultural factors. These factors also operate at multiple contextual levels, such as the individual, their peers, the family, teachers and schools. Both this literature review and the statistical analyses are organized around a capital conversion framework within a life course perspective. Many influences on educational trajectories can be understood as effects of the amounts and types of capital accumulation and of the conversion of one type of capital into another type of capital. The forms of capital relevant to the proposed research are: human, economic, technological, social, and cultural. The questions addressed will be how, under what conditions, and how effectively, is capital accumulated and converted from one form to another.

At the student level, the analysis focuses on those who possessed sufficient amounts of human capital at age 15 to function effectively in Canadian society. Under what circumstances and through what actions do they nevertheless fail to pursue PSE? Since all capital accumulation requires labour, did they fail to make the necessary effort in homework, for example, to maintain or improve their educational pathways?

At the household level, parents differ in the amount of economic, cultural, and social capital they possess, and the sheer amounts of these types of capital profoundly affect their children's educational pathways. But in addition, parents can choose to make financial investments of various sorts in their children's education, even when their resources are limited. The question here is which types of investments (such as equipping the home with educational materials and home computers/internet, or enrolment in private schools or music/dancing classes) are efficient vehicles for improving educational outcomes.

The life course perspective focuses on important transitions (and their sequences) such as leaving the parental home, forming relationships, and residential/school moves. It sensitizes us to the "linked lives" of youth with that of their parents, peers, and teachers, and that their educational decisions are embedded in a matrix of institutional parameters, such as the distinctly different transitions between high school, CEGEP, and universities in Quebec. Given the age of the sample being studied here, few will have experienced some of the transitions that are known to be important, such as parenthood.

The important issue in this paper is to understand how some young people who, despite high initial aspirations and solid reading achievement scores, nevertheless failed to fulfill to some extent those earlier promising indicators. The importance of the research is that it focuses squarely on one of the atypical pathways, namely initial high academic performance on reading achievement followed by subsequent non-completion of high school or completion of high school but without participation in PSE.

## ***2. Literature Review***

The issues investigated in this paper are novel in that educational pathways are explored focusing specifically on young people who at a previous point in time showed promising signs of solid educational outcomes. Specifically, the population of interest is students whose reading achievement score at age 15 was at a level at least equal to that which is conventionally considered adequate for effective participation in a knowledge-based society. The literature review failed to uncover any research that focused on similar populations. That is, no studies examined subsequent educational pathways specifically among young people whose prior academic performance (whether assessed on the basis of standardized achievement scores or marks obtained in school) was relatively good.

### **2.1 Global patterns**

Although educational pathways are numerous, the empirical literature documents that the determinants of any particular educational transition (such as early school leaving) are surprisingly consistent and common to the determinants of any other transition (such as enrolling in a university program). This suggests that educational pathways form a hierarchical structure. By this is meant that educational attainments are bounded by early school leaving at the lower end and obtaining post-graduate university degrees at the upper end, with a variety of different levels of education in between. The determinants of lower levels of educational attainment are basically similar to the determinants of higher levels. For example, Butlin (1999) found that the factors predicting university attendance are identical to, but a mirror image of, those predicting a direct transition to the workforce.

Some important differences exist within the overall hierarchy of educational pathways. Butlin's (2000) multivariate analysis confirms that academic factors tend to be more salient for university than for community college non-completion. For example, grades in the last term of high school have a greater effect on the odds of leaving university than they do on the odds of leaving community college. Likewise, some factors that directly affect academic performance are related to university, but not to community college, non-completion. This includes skipping classes, having friends who considered it very important to complete high school, and working more than 20 hours per week in the last year of high school. These remain significant factors in university non-completion, but not in community college non-completion.

### **2.2 Determinants of educational pathways**

This section reviews the literature of specific factors found to be associated with educational pathways and is organized into two broad categories: a) student performance, behaviours, and beliefs and b) household/family resources, including socio-demographic factors. Except where otherwise noted, the findings indicate unique effects, since they remain after a variety of statistical controls have been introduced.

## **2.2.1 Student performance, behaviours, and beliefs**

Measures of academic performance show the strongest connection with educational pathways, indicating that all aspects of academic performance are crucial for understanding subsequent educational transitions. Thus, high school grade-point average (GPA) is strongly related with all educational pathway transitions (Butlin 2000; Glick and White 2004; Lambert et al. 2004; Stoner-Eby 2002; Tomkowicz and Bushnik 2003). The same is true for scores on standardized math and reading achievement tests (French and Conrad 2001; Stearns, Moller and Blau 2004; Zaff et al. 2003).

One reason that some high reading achievers have failed to fulfill their potential may be insufficient effort and engagement with their school work. Previous research has used a variety of measures of academic engagement, ranging from the amount of homework done, skipping classes or truancy, to interest in, enjoyment, and participation in classroom discussions. These have generally had independent effects on subsequent educational pathways (Bowlby and McMullen 2002; Dinovitzer, Hagan and Parker 2003; Gilbert et al. 1993; Lambert et al. 2004; Stearns, Moller and Blau 2004; Stoner-Eby 2002).

Extracurricular participation, including participation in cultural activities and taking art/music lessons, is associated with educational pathways in most studies (Aschaffenburg and Maas 1997; Butlin 1999; Mahoney 2000; Videon 2002). Part of the association can be considered a selection effect (students with superior academic performance coming from privileged homes are more likely to participate in extracurricular activities). While statistical controls on these factors reduce the magnitude of the association of extracurricular participation with educational pathways, they do not eliminate it (for an exception, see Stearns, Moller and Blau 2004).

Having paid employment of more than 15- to 20 hours per week appears to have deleterious consequences on educational outcomes such as early school leaving (Bowlby and McMullen 2002; Tomkowicz and Bushnik 2003). Two reasons have been suggested for the effect of intensive employment. First, it seemed likely that intensive employment would interfere with school performance, affecting hours of homework, absenteeism, and marks. However, Warren (2003) failed to find these connections. A second reason is selection effects: intensive employment is pursued by students who already have disengaged from school, and therefore is simply a manifestation of this withdrawal process.

Many gender differences are found in young people's academic performance, attitudes and beliefs, activities, and efforts. Girls have higher educational aspirations, work harder to achieve their ambitions, and consequently perform better academically, enabling them to pursue PSE (Finnie, Lascelles and Sweetman 2005; Marjoribanks 2003; Thiessen and Looker 2004)

Peers play a relatively large role on educational pathways in countries with relatively undifferentiated educational systems, such as Canada and the US, but not in highly differentiated systems such as the German-speaking countries (Buchman and Dalton 2002). The effects can be both negative and positive. Zaff (2003), for example, found that if students reported that at least one friend dropped out, then they were less likely to attend college. On the positive side, Tomkowicz (2003) reports that the greater the number of one's friends planning to participate in PSE, the higher the likelihood of immediate participation in PSE versus non-participation.

## **2.2.2 Family resources, attributes and socio-demographics**

Numerous studies have investigated the effect of parental income, education, and occupation on the educational pathways their children have taken. These studies show that these variables, both individually and collectively, have relatively strong effects on all markers of educational attainment, such as dropping out (Bowlby and McMullen 2002; Crowder and Teachman 2004; Dinovitzer, Hagan and Parker 2003; Pong and Ju 2000; Stearns, Moller and Blau 2004; Stoner-Eby 2002; Teachman, Paasch and Carver 1997), years of education achieved (Chen and Kaplan 2003; Sandefur and Wells 1999; Tinklin and Croxford 2000), and obtaining a university education (Butlin 1999; Cheung and Andersen 2003; Crosnoe, Mistry and Elder 2002; Lambert et al. 2004; Zaff et al. 2003). Participation in PSE appears to be more strongly related to parental education than to household income (De Broucker 2005). These associations operate primarily by increasing the child's academic performance, since the effects of parental socioeconomic status (SES) are substantially reduced after controlling for academic performance. However, even after appropriate controls, in most studies the effects of the various measures of parental SES are not eliminated (for exceptions, see Butlin 2000; and Plank, Stefanie and Estacion 2004).

The persistence of parental SES effects despite controls on academic performance and various other background characteristics suggests that additional factors are related simultaneously to both parental SES and educational pathways. This conclusion is corroborated by the finding that having a sibling drop out of high school doubles the odds of the respondent also dropping out, even after the appropriate controls (Teachman, Paasch and Carver 1997:1352). The question is what those additional factors might be.

One promising approach is to distinguish between the various types of capital parents possess, and the ways in which they use or activate them to augment their children's educational outcomes (Looker 1994). Parents activate their economic capital by purchasing material goods and services that are likely to place their children at a competitive educational advantage.

Parents believe that equipping the home with ICT facilities gives their children an educational advantage (Ipsos-Reid 2005). Evidence for improved educational outcomes for their children remains mixed, indicating that home use of computers can, under certain circumstances, lead to better educational pathways (Attewell, Suazo-Garcia and Battle 2003; Bussière and Gluszynski 2004; Lowe, Krahn and Sosteric 2003; Wenglinsky 1998; Wenglinsky 2005/2006).

In addition to parental financial investments, their educational aspirations and expectations have consistently been found to have pervasive effects on their children's educational pathways (Astone and McLanahan 1991; Furstenberg and Hughes 1995; Gilbert et al. 1993; Glick and White 2004; Lambert et al. 2004), with a recent review of the literature finding them to be the most salient form of parental influence (Fan and Chen 2001). While parental expectations are tempered by reality constraints, such as the child's academic performance and engagement in school as the child progresses through the school system (De Broucker 2005; Looker and Thiessen 2006), these expectations nevertheless appear to exert an independent effect on educational pathways after controlling for marks and parental SES (Crosnoe, Mistry and Elder 2002; Tomkowicz and Bushnik 2003). The same holds true for the effect of parental social capital in the form of knowing their children's friends, which reduce the odds of dropping out and increase the likelihood of participating in PSE (Furstenberg and Hughes 1995).

A voluminous literature consistently documents that children raised in intact families have better educational outcomes, and especially a reduced risk of dropping out of high school (Crowder and Teachman 2004; Evans, Kelley and Wanner 2001; Finnie, Lascelles and Sweetman 2005; Furstenberg and Hughes 1995; Pong and Ju 2000). The primary direct reason for the higher educational attainment of children from intact families is their better academic performance, such as higher marks (Cheung and Andersen 2003). Controlling for household financial resources reduces the deleterious effects of living in a family without two biological parents (Glick and White 2004; Plank, Stefanie and Estacion 2004), indicating that parental resources more than parenting practices may be the reason for the better educational outcomes in intact households. The reduction of the effect is particularly pronounced for lone mother households (Musick and Bumpass 1999; Sun 1999; Zaff et al. 2003), which again strengthens the conclusion that parental resources are the underlying dynamics.

### 3. *The data and measures*

This report analyses data from cycles 1 to 3 of the Youth in Transition Survey (YITS)/ Program for International Student Assessment (PISA) survey of students who were 15 years of age in the baseline survey. The analyses are restricted to those youth who scored above Level 2 on the reading achievement test administered during the first cycle in 2000. The outcome variable of interest is the educational pathway of these young people at cycle 3, when they were 19 years old. To address the question why some high reading achievers subsequently found themselves on low educational pathways, it is necessary to provide an empirical definition of the quality of various educational pathways. Table 1 provides the definition of these groups, as well as their distribution, and is organized from worse to better outcomes.

<b>Table 1</b>		
<b>Definition of educational pathways and their distribution</b>		
<b>Group</b>	<b>%</b>	<b>Definition</b>
High school dropouts	4	Did not complete the requirements for a high school graduation certificate or its equivalent and are currently not enrolled in any educational program. It excludes those who participated directly in a PSE program without graduating from high school.
High school continuers	3	Currently enrolled in a high school or its equivalent. Given their age, they represent those whose high school completion has been delayed for reasons such as grade retention, prior dropping out and returning, or disabilities that have delayed the normal progression through the school system.
High school graduates	22	Obtained a high school completion certificate or its equivalent but have not participated in any PSE program.
PSE leavers	6	Were enrolled in a PSE program, did not complete the requirements of their program, and are currently not participating in a PSE program.
Non-university students	29	Enrolled in, or have completed, a PSE program that does not lead to a university degree.
University students	37	Enrolled in courses leading to a university degree or have completed the requirements for such a degree.

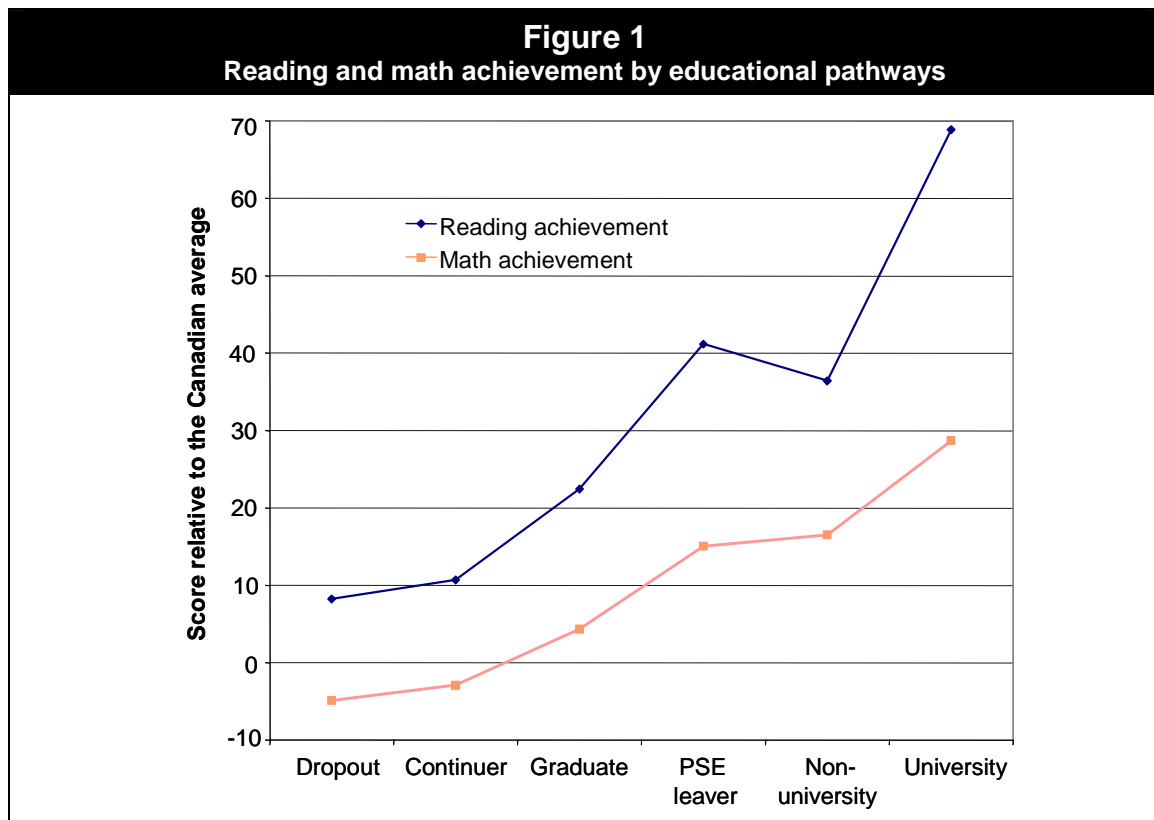


# 4. Findings

## 4.1 Profiles of educational pathways

For the profile analyses, the full array of outcomes defined in table 1 are retained. This permits one to see which groups differ and in what respects. In the multivariate analyses described in the subsequent section, educational pathways that were found to have relatively similar profiles will be combined to simplify the analyses.

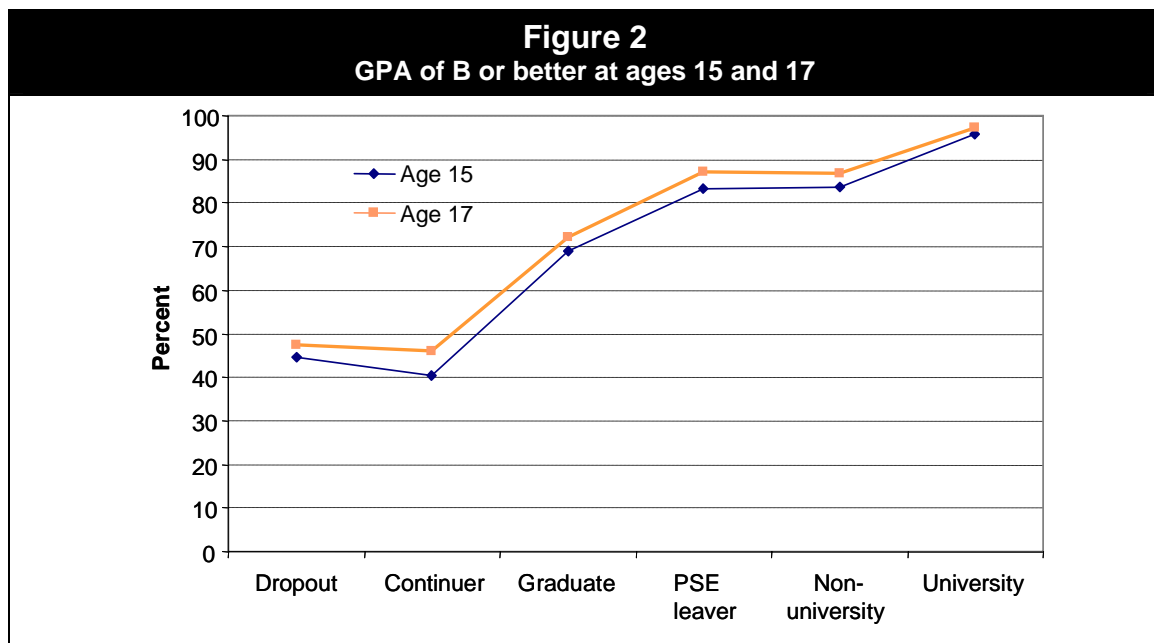
By design, all respondents in this report scored at or above the minimal level (Level 3) on reading achievement that is considered necessary to function effectively in a knowledge-based society such as Canada. Nevertheless a small minority of them failed to complete high school, and almost three in ten of them did not pursue any postsecondary education (PSE). Part of this is due to the fact that substantial variation in achievement scores still exist within this group, and these are associated with their educational trajectories (see Figure 1). Lowest achievement scores characterize dropouts and highest scores are found among university students. Note that despite the fact that on average the students in this analysis scored at Level 3 or higher on reading achievement, both dropouts and continuers scored below the Canadian average on math achievement. On the whole, the mean achievements increase as one moves from left to right in the figure, with a minor exception on the reading achievement test where PSE leavers scored higher than those enrolled in non-university PSE programs.



The fact that educational pathways show a strong connection with reading and math achievement means that poor educational outcomes are not as anomalous for some respondents in this sample of high achievers as for others. The multivariate analysis will address this problem by controlling for achievement scores. A variety of young people's attitudes, values, and behaviours (measured at age 17 except where explicitly indicated otherwise) that might account for poor educational outcomes are now profiled.

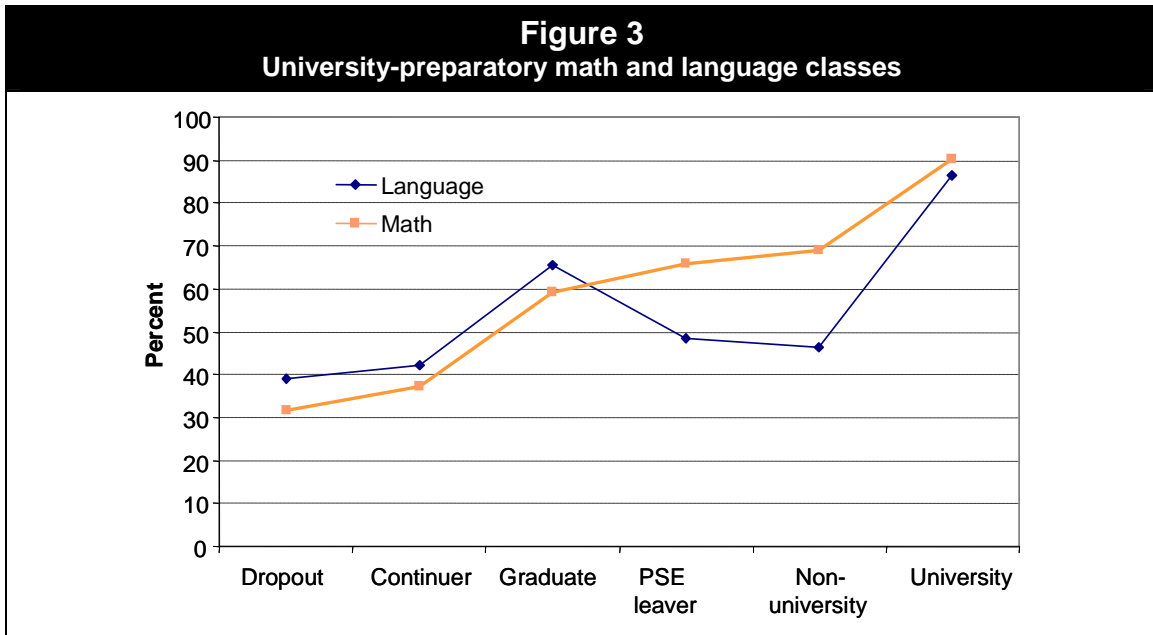
### 4.1.1 Academic performance

Dropouts and those who have not completed their high school program by the age of 19 can be thought of as the two groups that failed most to live up to their potential. Since high school academic performance is the most crucial factor for subsequent educational trajectories, it is to be expected that these two groups would have performed worst. Figure 2 corroborates this expectation, showing that less than half the dropouts and continuers obtained a GPA of at least a B in their final year of high school. In contrast, virtually all who enrolled in a university program had achieved such an average. The same figure also shows that these differences in marks were already apparent at age 15.



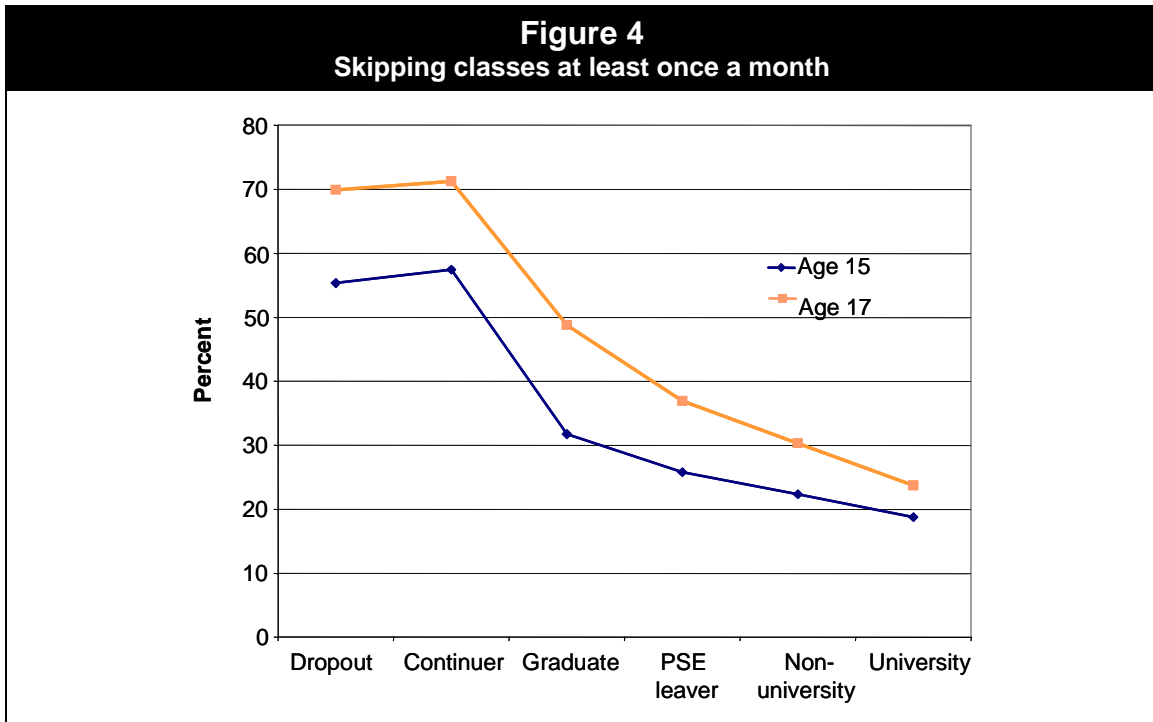
Marks are not the only aspect of high school academic performance relevant to educational pathways. By age 17, students choose or are placed (in consultation with school personnel and their parents) into different academic programs for certain subjects. Especially important is whether students take math and language at a university-preparatory level. Figure 3 shows a steady increase in the proportion who took a university-preparatory math class as one moves from worse to better educational trajectories; about a third of dropouts took math at a university-preparatory level compared to nine in ten university participants. The situation is more complex with respect to taking language classes at a university-preparatory level: Both PSE leavers and those enrolled in non-university PSE institutions are less likely than graduates to have taken their last language class at a university-

preparatory level. Nevertheless, it is still the case that dropouts are least likely, and university participants most likely, to have taken both math and language classes at a university-preparatory level.



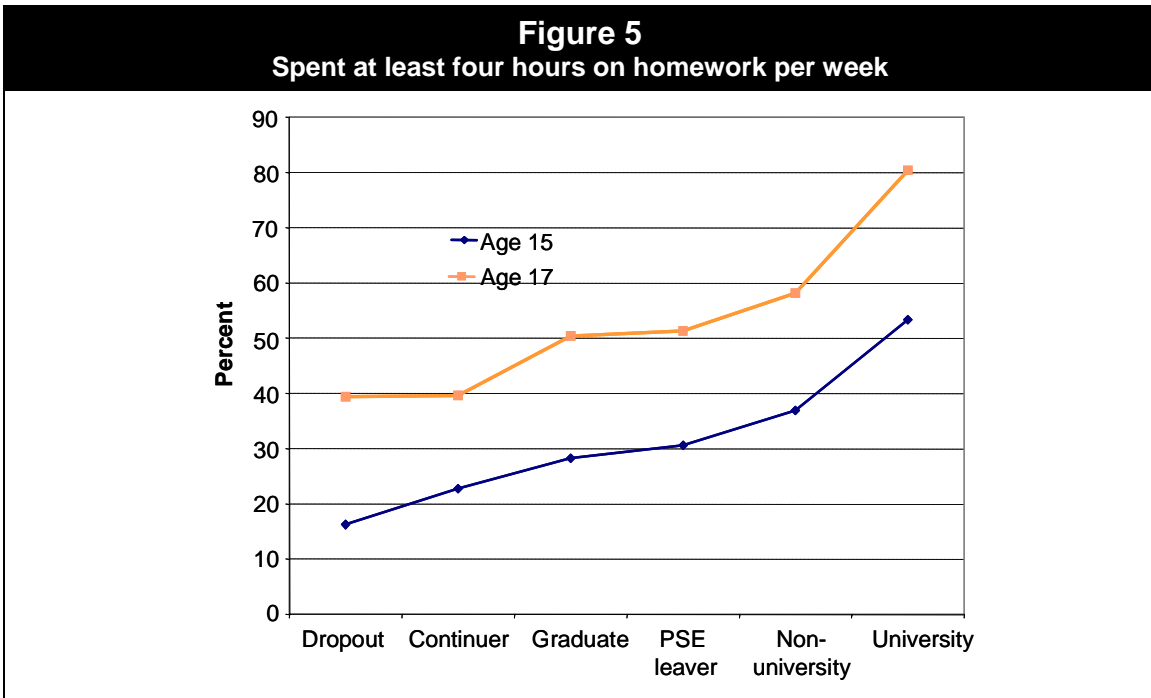
### 4.1.2 Academic effort

The important question is why youth on poor educational trajectories performed less than superbly in high school, despite their high reading achievement. Did they perhaps feel it unnecessary to put in the requisite effort on their school work? The evidence suggests that this is indeed the case. Figure 4 provides two important pieces of information in this regard. First, it shows that dropouts and continuers were especially likely to have skipped classes at least once a month (upwards of seven in ten). Skipping classes drops appreciably among those who completed high school (with about half skipping class this frequently), while only about a quarter of university participants did so.



The second important finding here is that, while skipping classes increased for all educational pathways between ages 15 and 17, it increased more among those who did not live up to their potential. Between 14 and 17% more dropouts, leavers, and graduates skipped classes at least once a month at age 17 than they did at age 15, while only five percent more students who enrolled in a university program did so. In other words, youth who failed to live up to their academic potential skipped classes more frequently already at age 15 and, over the course of their high school career, started to skip classes especially often.

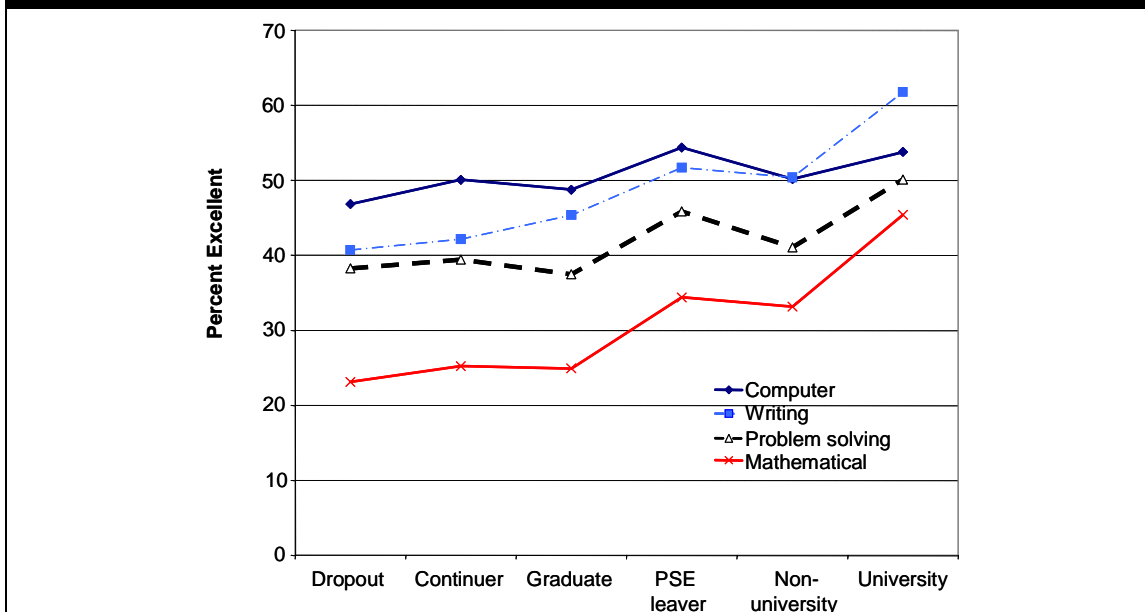
Figure 5 corroborates the conclusion that a main reason high reading achievers failed to live up to their potential is that they did not put sufficient effort into their academic pursuits. This figure shows that the likelihood of spending at least four hours a week on homework increases progressively with better educational trajectories: only four in ten high school leavers and continuers spent that much time on homework at age 17, compared to twice that proportion among those who enrolled in university. Compared to non-university participants, those enrolled in a university program are especially more likely to have spent at least four hours per week on homework. Note again that this lesser effort is clearly established already at age 15.



### 4.1.3 Self-confidence

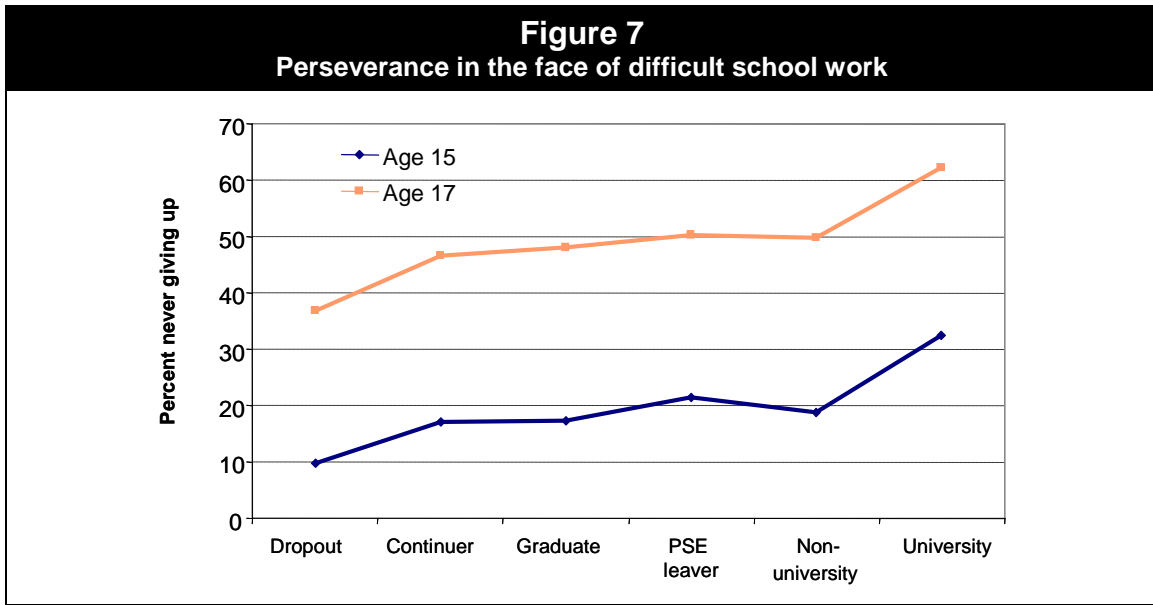
A possible reason for the lower academic effort of dropouts and leavers is that they may not have developed confidence in their abilities despite their relatively solid reading achievement. It must be remembered that the results of the standardized achievement tests are less visible than are the marks obtained in their classes. At age 17, respondents were asked to rate their abilities in a number of skill domains. Figure 6 shows modest but relatively consistent patterns of self-assessed skills with subsequent educational trajectories. For all skill domains, dropouts were least likely to rate their skills as excellent, while those who had enrolled in a university program were most likely to do so, suggesting that self-confidence in one's skills may have played a role in educational pathways undertaken.

**Figure 6**  
Excellent self-assessed skills



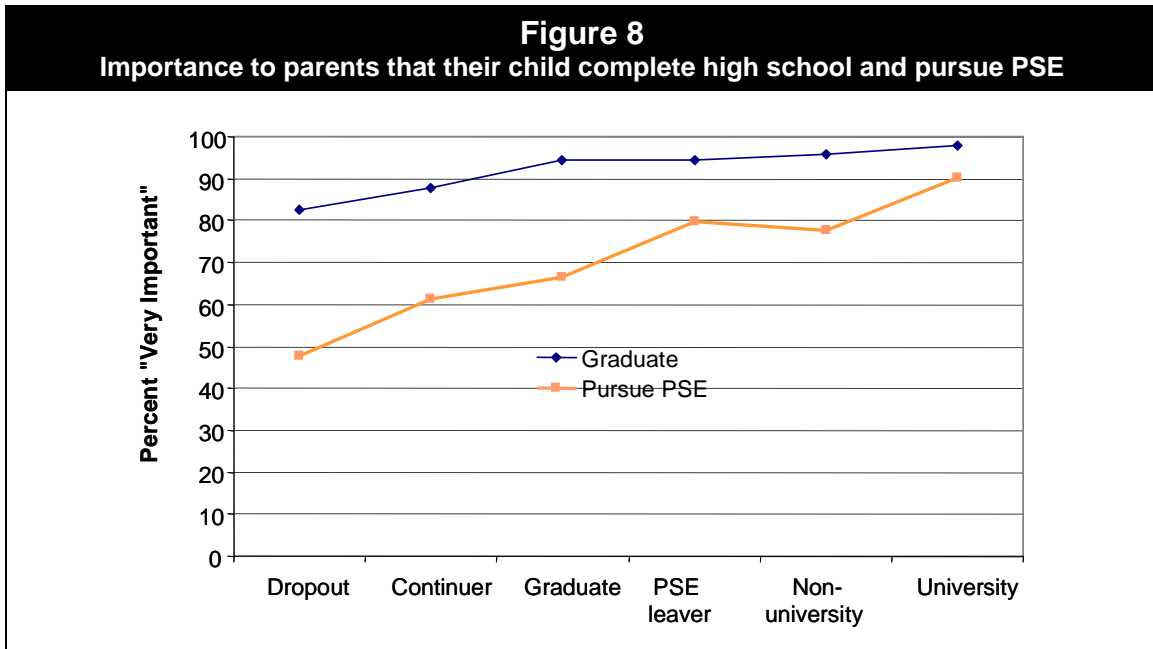
This figure also provides one clue concerning why some high reading achievers choose to enroll in a non-university program rather than on a university program. Note that for all skill domains, a lower percentage of non-university participants rate their skills as excellent than do PSE leavers. It appears from this that high reading achievers who choose a non-university program are not as confident about their skills as either PSE leavers or university participants.

A second form of low self-confidence is to give up in the face of difficulties. It has already been shown that high reading achievers with anomalously low educational outcomes have failed to put in sufficient personal effort into their academic pursuits. One consequence of this may be that some of them find their school work to be so difficult that it discourages them from trying. Respondents were asked how often they gave up when school work was difficult. As Figure 7 shows, participants in university programs already at age 15 had developed a habit of persevering while dropouts were particularly likely to give up in the face of difficult academic work. This pattern continued at age 17.



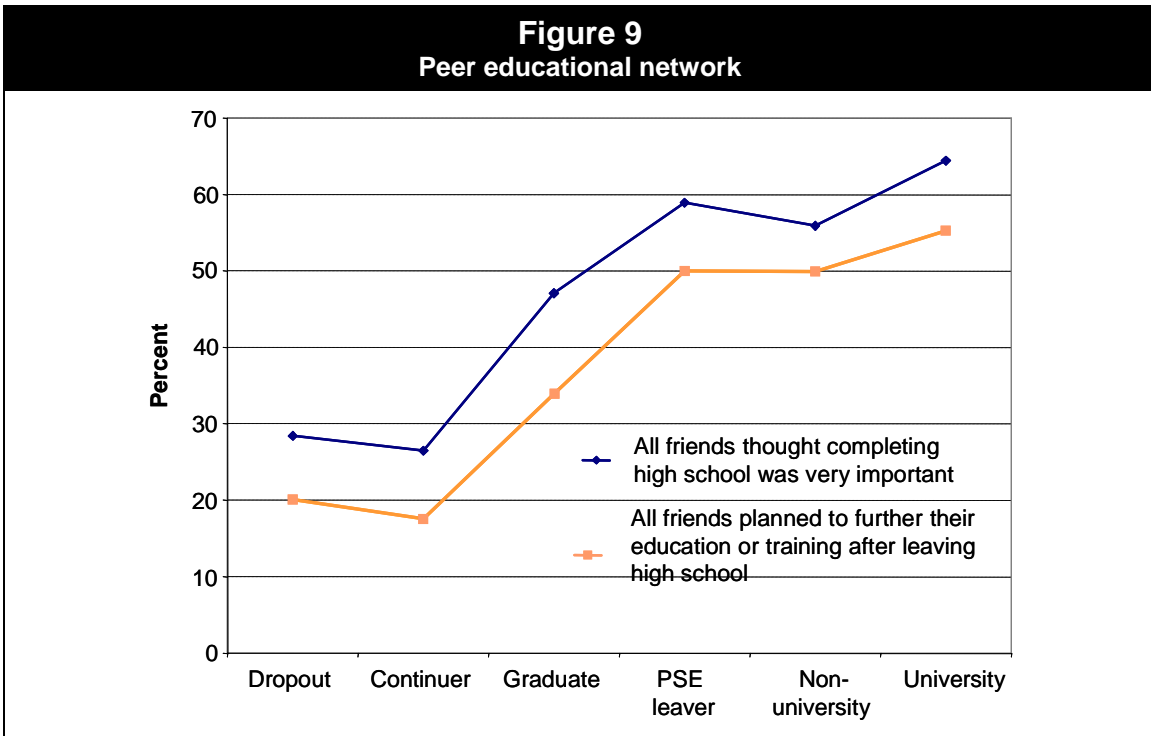
#### **4.1.4 Parental educational support**

Parents are an important resource for the academic activities of their children. In households where parents believe that education is vital, it is likely that the educational pursuits of their children will be especially encouraged. Previous research showed that the educational aspirations parents have for their children is generally the most important aspect of parental influence. Since regardless of educational trajectories more than four-fifths of all high reading achievers believe it is important to their parents that they at least complete their high school, there is insufficient variability on this count to show the important influence of parents (see Figure 8). However, how important youth believe PSE is to their parents reveals dramatic differences. Less than half the dropouts felt it was very important to their parents that they participate in PSE, compared to at least four-fifths of those who enrolled in a university program. This finding suggests that dropouts in particular may not have received sufficient parental encouragement. Before accepting such a conclusion, it is necessary to point out that it is possible that young people with poor educational outcomes selectively perceive that higher education is not important to their parents. This possibility can be tested since parents' own views were obtained in cycle 1. Using parents' own report shows the same patterns as Figure 8 (results not shown). This strengthens the conclusion that parental valuing of education is an important ingredient in their children's educational pathways. Specifically, high reading achievers on anomalously low educational pathways reside in households where the parents see less value of higher education.



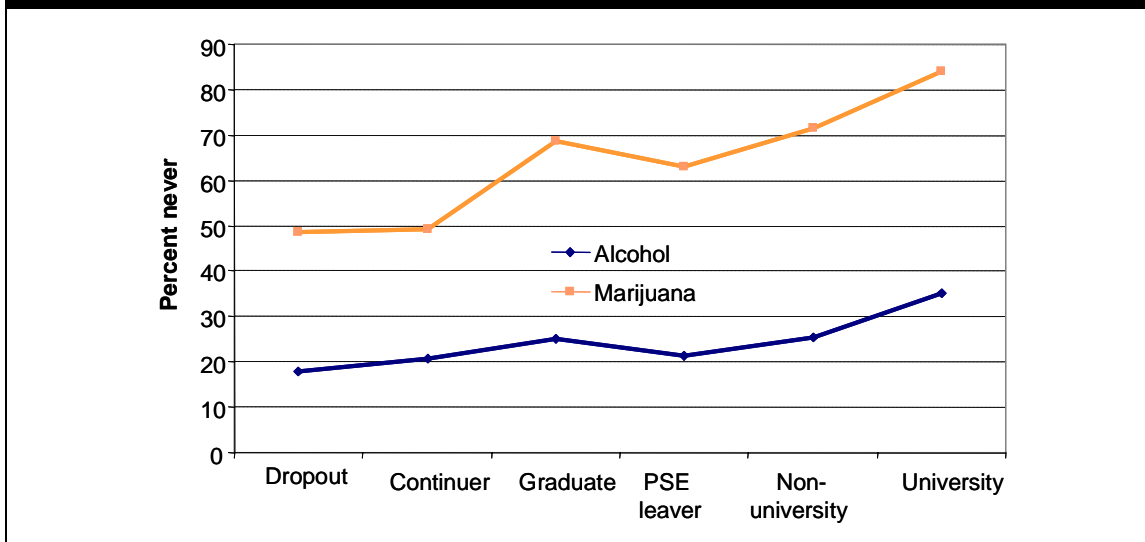
#### 4.1.5 Peer educational support and use of alcohol/marijuana

During the teen years, peers become especially important to young people. The network of young people's peers can have both positive and negative effects. On the positive side, having peers who believe in the importance of education and who plan to pursue postsecondary education can act as positive role models. On the negative side, alcohol and marijuana/hash is usually consumed within peer networks and may act as a deterrent to one's academic career. Figure 9 documents the intimate connection between the educational values and plans of one's peers on one's own educational pathways: More than twice the percentage of those who participated in any form of PSE than high school dropouts and continuers had a peer network composed of friends who believed completing high school was very important and who planned to pursue PSE.



Turning to alcohol and marijuana/hash use, it appears that both are important, although the latter is more important than the former in terms of apparent consequences on educational trajectories: Only about half the dropouts and continuer report not having used marijuana/hash compared to 84% of university students. Consuming alcohol is substantially more common at age 17 and abstaining from alcohol appears to have weaker connection with educational pathways. One interesting pattern is that PSE leavers appear to be somewhat anomalous in their alcohol and marijuana use. On both counts, PSE leavers are less likely to be abstainers than the groups on either side of them. This suggests that some PSE leavers may have continued to be involved in peer cultures where partying is more prominent.

**Figure 10**  
**Abstained from alcohol and marijuana/hash**

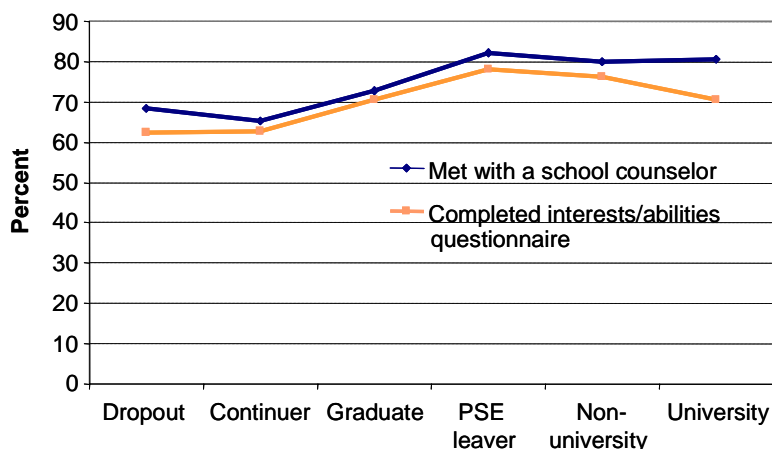


In connection with peer relationships, it is important to point out that a very small minority of high reading achievers (0.1% of males and 0.4% of females) report being a parent by the age of 17. Nevertheless, teenage mothers are concentrated among dropouts and high school graduates (70%) with only three percent of teenage mothers attending university (data not shown). Thus, while teenage parenthood is extremely rare among high reading achievers, it nevertheless appears to be a possible candidate for why some of these females did not pursue PSE.

### 4.1.6 School supports

Guidance counselors are a school-based resource to help students learn about their skills and interests, and prepare them for the world of work and/or further education. Given the fact that the young people in this sample exhibited solid reading achievement at age 15, suggesting that they are good candidates for PSE, the role of school counselors might be particularly important for directing them to good educational pathways. Ironically, as Figure 11 shows, young people who arguably could benefit the most from meeting with a school counselor were the least likely to report having done so. Less than 70% of both dropouts and continuers, compared to 80% or more of those who participated in some form of PSE met with a school counselor. A similar pattern exists for having completed a questionnaire to explore one's interests and abilities. These patterns suggest that young people who fail to live up to their promise are somewhat less future-oriented; they are not taking advantage of opportunities that might help them make better educational and career transitions.

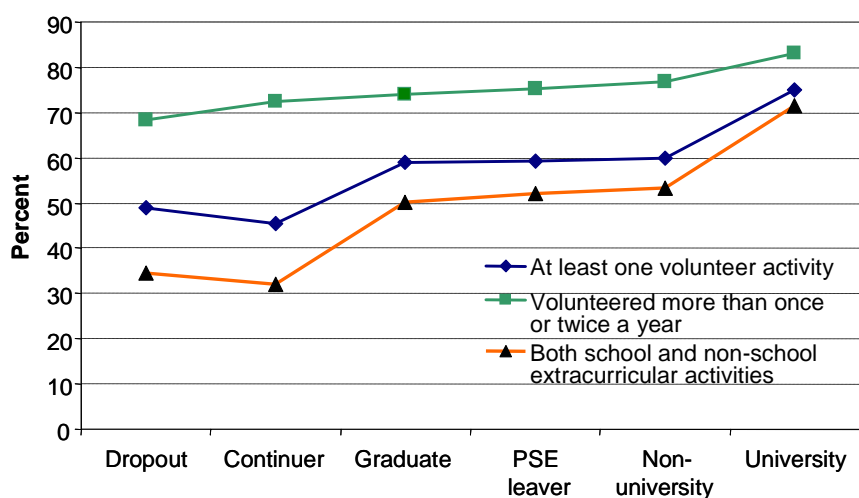
**Figure 11**  
School supports



### 4.1.7 Participation in adult-supervised activities

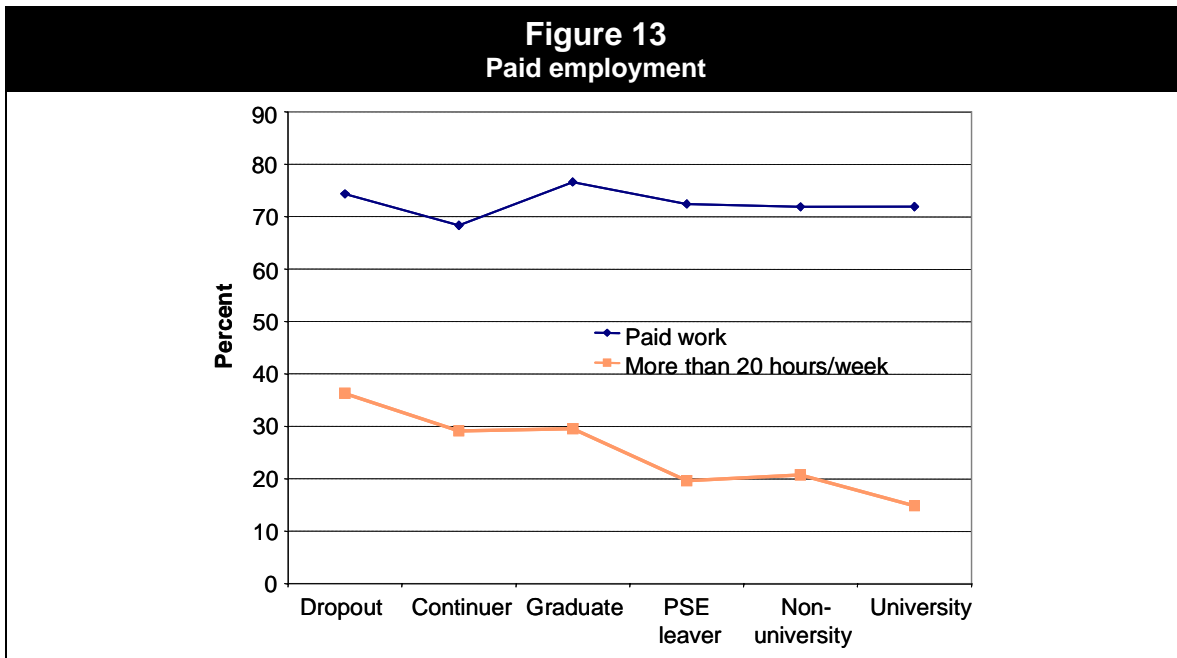
Participation in extracurricular activities and volunteer work are two ways in which young people can develop their stock of social and cultural capital. These are also adult-supervised activities and such adults can be important role models. Both types of participation appear to be related to subsequent educational pathways in the expected direction (Figure 12). There is also a small tendency for better pathways to be associated with more frequent volunteer participation.

**Figure 12**  
Participation in volunteer and extracurricular activities



### 4.1.8 Paid employment during the school year

The effects of paid employment during the academic year have received much attention. Among high reading achievers, whether one had a paid job at age 17 has a negligible association with educational pathways, but intensity of employment appears to be a factor. As Figure 13 shows, working more than 20 hours per week during the school year is associated with poorer pathways. The fact that those who ended up in university were least likely to have worked 20 hours or more at age 17 suggests that intensive employment interferes with actualizing one’s educational potential.



### 4.1.9 Socio-demographic factors

Previous research has documented that educational pathways are associated with a large number of socio-economic and demographic factors. These are factors over which the individual youth has little control. Some of them represent economic, social, and cultural capital. As the title of Lareau’s (1989) book intimates, there are “home advantages.” The associations of the more important socio-demographic factors are profiled here in their relation to educational pathways. Parents’ human, economic, and cultural capital is closely associated with the educational pathways of their children. Figure 14 shows the typical relationships: the higher the educational pathway, the more likely it is that the home is equipped with internet facilities and that the mother has some PSE; in contrast, the likelihood of parental income being in the bottom quintile decreases with better educational pathways.

**Figure 14**  
**Parental income, home internet access, and mother's education, by educational pathways**

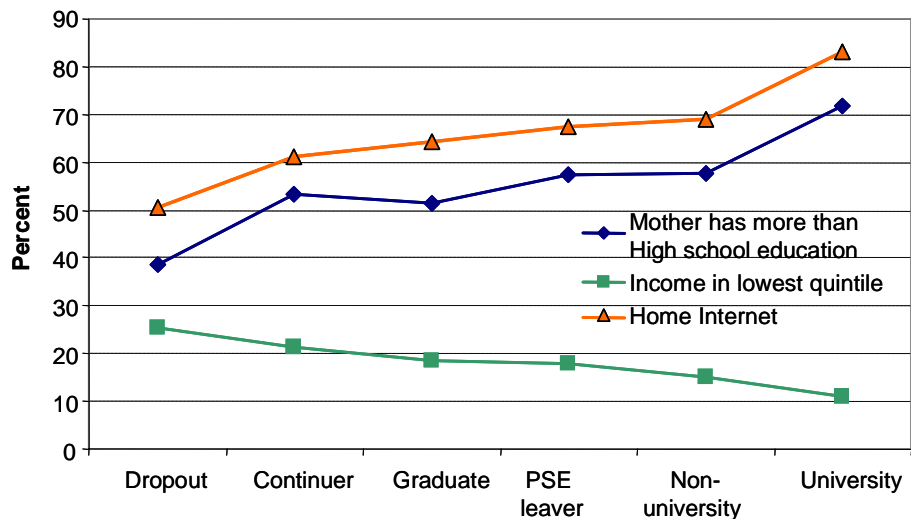
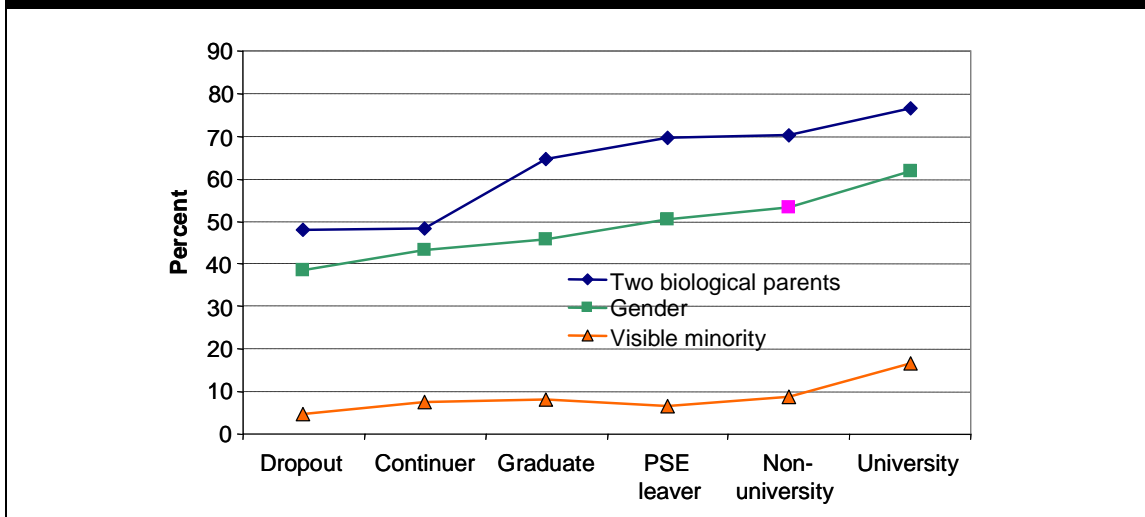


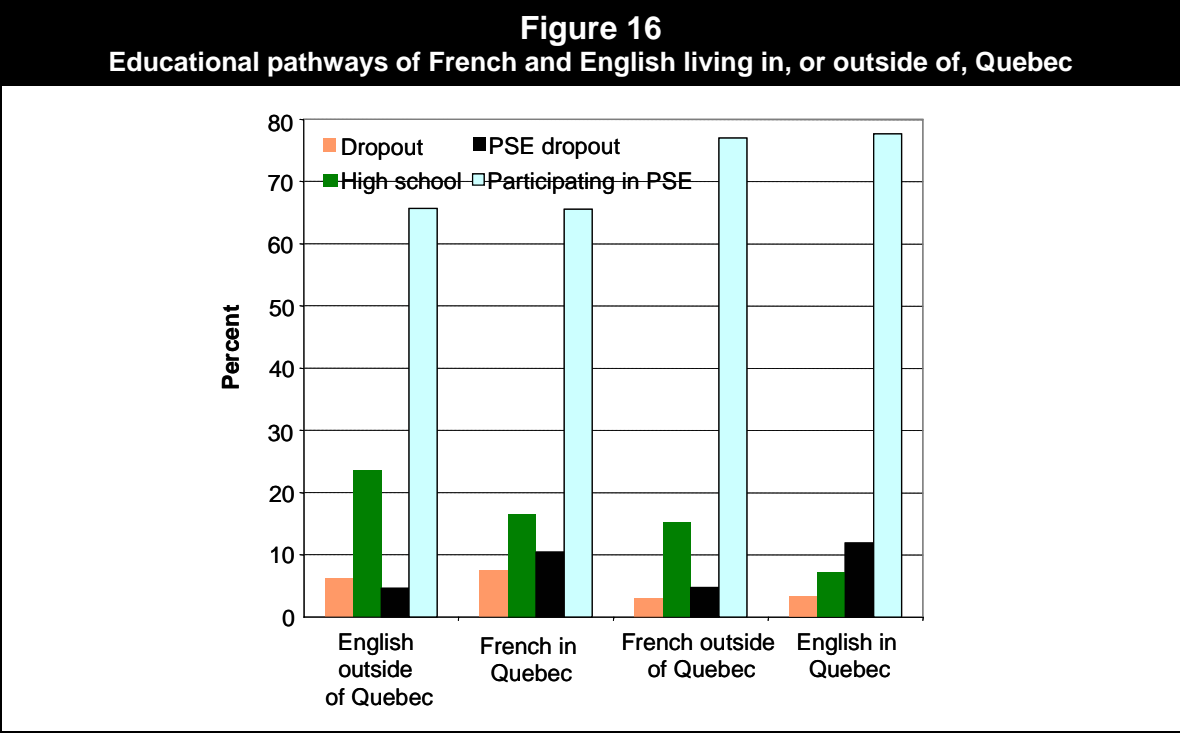
Figure 15 shows that the higher the pathway, the greater is the proportion of females in that trajectory. Less than two in five dropouts, just over half of PSE leavers, and over three in five of those enrolled in university are female. Living with two biological parents is also associated with better educational outcomes: under half the dropouts and continuers are living with both biological parents, compared to over three-quarters of those attending university. Being a member of a visible minority does not differentiate between most pathways, except for enrolment in a university program, with a substantially higher proportion of visible minorities in this pathway than in the others.

**Figure 15**  
Demographic profile of educational pathways



Several additional points about demographic factors are worth noting (data not shown). Immigrant youth are overrepresented in university programs, and are also unlikely to leave PSE without completion. Of some interest is the fact that few parents report that their children's high school marks are a barrier to their fulfilling their educational aspirations, with fewer than five percent of parents reporting such a barrier for any of the educational pathways. Rather, they are much more likely to see lack of interest and motivation as a barrier. This is especially the case for the parents of dropouts (18%) and especially high school continuers (26%). Financial barriers do not loom large in any educational pathway, with between 10 and 16% citing finances standing in the way of their child's future education.

Previous studies have documented complex relationships between Anglophones and Francophones residing in Quebec or another province with educational aspirations and expectations (Looker and Thiessen 2006; Thiessen and Looker 2004). However, the nature of the CEGEP system in Quebec makes the distinction between community college and university participation problematic for this age group. For this reason, all types of PSE are combined in Figure 16 (and additionally high school continuers are combined with high school graduates because of small sub-sample sizes). Educational pathways interact in complex ways with whether the respondent resides in Quebec and whether they are Francophone. Francophones outside of Quebec, but Anglophones in Quebec are most likely to participate in PSE programs, with almost four in five doing so. In contrast, only about two-thirds of Anglophones outside of Quebec and Francophones in Quebec do so. This suggests that members of a minority language group (French outside of Quebec; English in Quebec) utilize the educational system to maintain or improve their social position. Corroborating this impression, dropping out of school is also the lowest for the minority language groups.



## 4.2 Multivariate Analyses

The profile patterns reinforce the conclusion that educational pathways form an ordered continuum from poor to good trajectories. Further, they provide support for expecting many of the determinants of educational pathways to be monotonically related to them. Multinomial logistic regression is used to contrast four educational pathways along this continuum: 1) High school non-completers, which combines dropouts with continuers 2) high school graduates with no further PSE, 3) participants in non-university PSE (including PSE leavers), and 4) participants in university programs.<sup>1</sup>

Two models are developed and tested.<sup>2</sup> The first one includes all statistically significant high school experience variables measured when the respondents were 17 years old. This model helps us infer which aspects of youth’s values, attitudes, and behaviours in high school appear to have independent effects on their subsequent educational pathways. However, it is well known that some of these variables are associated with a variety of socio-demographic attributes. To take one example, students of highly-educated parents are more likely to participate in volunteer and extracurricular activities. For this reason it is important to control for these socio-demographic effects, which were measured when the respondent was 15 years old. This is done in Model 2. Changes in the magnitude of the coefficients estimated in Model 1 will inform which, and to what extent, each of the student’s values,

<sup>1</sup> The profile analyses support the decision to combine dropouts with leavers, and non-university participants with PSE leavers, since on many counts respondents in these adjacent pathways were quite similar.

<sup>2</sup> All parameter estimates were calculated using hierarchical linear modeling techniques; these take into account the fact that students are nested within schools, which affects estimates of the standard errors and consequently the statistical significance of the effects of the independent variables.

attitudes, and behaviours have an effect that is not due to any advantages and disadvantages associated with their family of origin.

Missing values plague multivariate analyses by diminishing the sample size and thereby making it less representative. For this reason, missing values were substituted with the mean for each variable, and a missing value indicator was constructed and included as a control variable in all multivariate analyses. Also, to make the odds ratios reasonably comparable, all continuous variables were converted into standard scores. Hence the odds ratios can be read as the effect of a one standard deviation change in a given independent variable on the relative odds of a given educational outcome. Table 2 provides descriptive information for all variables used in the multivariate analyses.<sup>3</sup> Definitions of the variables for the multivariate analyses are given in the appendix.

<b>Table 2</b>		
<b>Descriptive statistics for variables used in multivariate analyses</b>		
	<b>Mean</b>	<b>Standard Deviation</b>
Academic effort	0.08	0.968
Alcohol/marijuana use	2.08	0.957
Peer educational support	0.11	0.954
Extracurricular activities	1.45	0.644
Missing value indicator	0.30	0.684
High school job/education preparation	0.06	0.983
Employed 20 or more hours/week	0.19	0.388
Parental educational support	1.50	0.766
Educational aspirations	0.14	0.984
University-preparatory classes	1.37	0.773
GPA	0.20	0.954
Changed high school	0.19	0.394
Parental education	0.13	0.986
Availability of home computers	0.08	0.870
Income (quintiles)	2.12	1.315
Female	0.54	0.499
Canadian-born	0.81	0.393
Visible minority	0.11	0.309
Two biological parents	0.65	0.478
Math achievement	0.24	0.874
Reading achievement	0.46	0.677

<sup>3</sup> The mean of the variables is not zero, since they were centered on the mean for the total sample rather than on the mean for high achievers. This permits one to see how high achievers differ from the overall sample.

Three sets of contrasts should illuminate the factors that might account for the different educational pathways taken by high reading achievers. The first contrast (Table 3) compares those who ended up in the most anomalous pathway (non-completion of high school) with those on a somewhat better pathway, namely high school graduates who did not pursue any form of PSE. The next two tables contrast non-university and then university participants with high school graduates. These two tables assess the possible reasons why high reading achievers who completed high school failed to make the transition to PSE by the age of 19.

#### 4.2.1 *Non-completers compared to high school graduates*

Turning first to high school experiences, Table 3 reveals several important factors. First, high reading achievers on particularly low educational trajectories (high school non-completers) failed to put sufficient effort into their school work. A one standard deviation increase in academic effort is predicted to increase the odds of high school completion by 30% ( $1 - .696 = .30$ ). Second, poor marks and not taking university-preparatory math and/or language classes are key factors that increase the likelihood of some of these high reading achievers dropping out or failing to complete high school by the age of 19.

<b>Table 3</b>				
<b>Multinomial logistic contrast of high school non-completers with high school graduates</b>				
	<b>High school experiences</b>		<b>Socio-economic background</b>	
<b>Non-completer versus graduate</b>	<b>Odds ratio</b>	<b>p</b>	<b>Odds ratio</b>	<b>p</b>
Intercept	0.269	0.000	0.167	0.000
Academic effort	0.696	0.000	0.695	0.001
Alcohol/marijuana use	1.134	0.048	1.137	0.054
Peer educational support	0.836	0.006	0.872	0.046
Extracurricular activities	0.928	0.407	0.928	0.418
High school job/education preparation	0.810	0.030	0.769	0.010
Employed 20 or more hours/week	0.999	0.993	0.949	0.720
Parental educational support	0.886	0.188	0.846	0.065
Educational aspirations	0.922	0.289	0.927	0.330
University-preparatory classes	0.564	0.000	0.626	0.000
GPA	0.595	0.000	0.647	0.000
Changed high school			1.569	0.005
Parental education			0.870	0.088
Availability of home computers			1.033	0.502
Income (quintiles)			0.910	0.094
Female			0.753	0.024
Canadian-born			2.517	0.008
Visible minority			1.488	0.169
Two biological parents			0.618	0.002
Math achievement			0.876	0.084
Reading achievement			0.699	0.008
Nagelkerke pseudo R <sup>2</sup>	0.45		0.49	

The poor academic performance of the non-completers is partly a consequence of their lack of effort. However, the third point revealed in the table is that peers played a significant role, both positive and negative, in these young people's educational trajectories. On the positive side, having peers who saw the importance of education and who planned to pursue PSE increased the likelihood of completing high school, while alcohol and marijuana/hash use (generally consumed within one's peer network) increased the odds of not completing high school.

Fourth, and in contrast to the role of peers, neither the youth's own educational aspirations nor how important they thought high school completion was to their parents have an independent effect on high school completion. These patterns suggest that youth with high reading achievement who subsequently have the most anomalous educational pathways are ones who permitted peers to influence them more than their own parents or even their own educational values.

Fifth, whether high reading achievers were in paid employment during the school year was not significantly related to educational pathways in any of the multivariate analyses (and therefore does not appear in the tables). However, and in contrast to some previous research findings, paid employment does not appear to be a symptom of disengagement from school work, since working 20 or more hours per week is unrelated to high school completion. Also differing from previous research is that participation in extracurricular activities is unrelated to high school completion. The main reason for this is that the effects of academic effort and academic performance are controlled in this analysis and in these ways the analysis controls for some of the selection effects (academically better-performing students are generally more likely to participate in extracurricular activities). Finally, there is also some support for the proposition that high school non-completers are less future-oriented, since they were less likely to have participated in the school-provided career and/or PSE information and exposure activities.

Model 2 adds the important socio-demographic contexts. Although they reduce some to the parameter estimates provided in Model 1, on the whole they indicate that the high school experiences that were significant remain so. This leads to the conclusion that high school experiences are not an artifact of selection factors associated with socio-economic and other contextual factors. It also shows that, after controlling for academic performance and other high school experiences, females, immigrants and those living with both of their biological parents are significantly more likely to complete high school than their counterparts. The superior pathways of females generally have been documented in previous research. Important here is that this is not due just to their better academic performance, since academic performance is held constant in this model. Other research has also indicated that living with two biological parents appears to act as a protective buffer against undue peer influence and such an interpretation is congruent with the findings here. What is more surprising is that material and social/cultural advantages in the form of household income and parental education is only marginally significant ( $p < .10$ ), and availability of home computers not at all. These findings suggest again that young people on anomalously low educational pathways are not capitalizing on their home advantages. It is also worth pointing out that some arguably disadvantaged students actually are more likely to complete high school than their more advantaged counterparts. Note for example that Canadian-born youth are 2.5 times

*less* likely to complete high school than are immigrants. It may well be that immigrant parents, for whom the educational attainments of their children is particularly important, provide the apparently needed buffer and supports to at least finish their high school.

Finally, changing high schools has a deleterious effect on the likelihood of completing high school; the odds of not completing high school among those who reported having changed high school at age 17 are 57% higher than among those who remained in the same school. There are a number of possible reasons for this relationship; young people who changed schools may feel less integrated into their school culture; they may have developed fewer social supports; or it could be that residentially mobile families are less able to provide protective buffers for their children. The data are insufficient to permit one to decide between these alternatives.

#### **4.2.2 Participants in non-university PSE compared to graduates**

The second-most anomalous outcome among high reading achievers is to complete high school not pursue PSE. This section provides information on the factors that differentiate those who failed to pursue any PSE (graduates) with those who opted to enroll in a non-university PSE program (or who enrolled in PSE but left their program without completing it). Are the same factors implicated in these educational trajectories as was found for high school non-completion, or are different dynamics are involved?

Table 4 indicates that only a few of the same high school experiences that were important for understanding the most anomalous pathway are the same as those underlying the second-most anomalous pathway. Starting with the similarities, high school marks and positive peer educational supports are important for the decision to pursue non-university PSE, as they were for completing high school. Likewise future orientation in the form of taking advantage of school-provided opportunities to prepare for transitions to PSE and work operate in the same manner. But that is the end of the similarities.

**Table 4**  
**Multinomial logistic contrast of participants in non-university PSE**  
**with high school graduates**

Non-university versus graduate	High school experiences		Socio-economic background	
	Exp(b)	p	Exp(b)	p
Intercept	0.620	0.006	0.770	0.297
Academic effort	1.081	0.093	1.090	0.075
Alcohol/marijuana use	0.953	0.266	0.948	0.225
Peer educational support	1.174	0.000	1.151	0.000
Extracurricular activities	1.106	0.058	1.098	0.077
High school job/education preparation	1.221	0.001	1.255	0.000
Employed 20 or more hours/week	0.787	0.006	0.802	0.012
Parental educational support	1.297	0.000	1.283	0.000
Educational aspirations	1.101	0.033	1.077	0.093
University-preparatory classes	1.085	0.168	1.053	0.392
GPA	1.426	0.000	1.358	0.000
Changed high school			0.943	0.573
Parental education			1.118	0.008
Availability of home computers			1.093	0.003
Income (quintiles)			1.014	0.600
Female			1.263	0.004
Canadian-born			0.839	0.317
Visible minority			1.241	0.172
Two biological parents			0.881	0.251
Math achievement			1.089	0.074
Reading achievement			1.085	0.211
Nagelkerke pseudo R <sup>2</sup>	0.45		0.49	

Turning to the differences, there is little sign of the negative effect of participation in a drinking and/or marijuana use peer subculture. In its stead the positive effect of parental educational support emerges, as well as a greater concordance with one's own educational aspirations. Furthermore, the odds ratio of not pursuing PSE is about one fifth higher among young people who chose to work intensively in paid employment during the school year ( $1 - .787 = .213$ ). Whether one took math and language classes at a university-preparatory level appears to be essentially irrelevant to the decision not to pursue PSE, and academic effort is only marginally significant ( $p < .10$ ). This latter finding does not imply that academic effort is not important—it simply indicates that academic effort that does not result in improved marks is of only marginal significance. Finally, participation in extracurricular activities is now marginally significant ( $p < .10$ ).

Controlling for socio-economic background factors has little effect on the parameter estimates: those high school experiences that were significant without controlling for these contextual factors continue to be significant and the sizes of the odds ratios are quite similar. This shows again that the values, attitudes, and behaviours of high school students at age 17 have independent effects on whether they pursue a better or a worse educational pathway. What differs is which specific attitudes, values, and behaviours are implicated.

Of some importance is that parental education but not household income is a factor in young people's decision to pursue non-university PSE. That is, the decision to pursue non-university PSE is apparently not made on the basis of financial considerations. The fact that it is affected both by parental education and by the availability of home computers indicates that how parents activate their economic and cultural capital is more crucial than how well off financially they happen to be.

As was found in the previous section, females are more likely to fulfill their potential than are males; specifically, the odds of a female pursuing a non-university PSE rather than not participating in any PSE is 26% higher than that for males. In contrast to the findings for non-completion of high school, none of the other socio-demographic factors are significantly related to the decision to curtail one's education at a high school completion level rather than to pursue non-university PSE.

### **4.2.3 Participants in university programs compared to graduates**

The final set of contrasts is between those who failed to pursue PSE (thereby not living up to their potential) with those who enrolled in a university program, as might be expected from young people with solid prior reading achievement. Looking at the first model in Table 5, all except one aspect of high school experiences are significantly related to curtailing one's education at the high school completion level rather than enrolling in a university program. This is different again from the findings of the two previous tables. For example, the only variable in Model 1 that shows no effect here is participation in school-provided job/education preparation activities. This factor was, however, significantly associated with both of the previous sets of pathways. Not only are all the other high school experience variables statistically significant, most of them are quite substantial. For example, being employed 20 hours or more per week at age 17 is predicted to increase the odds of curtailing one's education at the high school completion level by 42% ( $1 - .58 = .42$ ). Likewise, participating in either school or non-school extracurricular activities is associated with a 54% increase in the odds of enrolling in university.

<b>Table 5</b>				
<b>Multinomial logistic contrast of participants in university programs with high school graduates</b>				
	<b>High school experiences</b>		<b>Socio-economic background</b>	
	<b>Exp(b)</b>	<b>p</b>	<b>Exp(b)</b>	<b>p</b>
<b>University versus graduate</b>				
Intercept	0.103	0.000	0.117	0.000
Academic effort	1.259	0.000	1.296	0.000
Alcohol/marijuana use	0.910	0.041	0.898	0.022
Peer educational support	1.234	0.000	1.167	0.000
Extracurricular activities	1.544	0.000	1.480	0.000
High school job/education preparation	0.992	0.902	1.061	0.375
Employed 20 or more hours/week	0.580	0.000	0.625	0.000
Parental educational support	1.838	0.000	1.721	0.000
Educational aspirations	1.920	0.000	1.822	0.000
University-preparatory classes	1.696	0.000	1.636	0.000
GPA	3.022	0.000	2.533	0.000
Changed high school			0.767	0.021
Parental education			1.442	0.000
Availability of home computers			1.100	0.008
Income (quintiles)			1.112	0.001
Female			1.651	0.000
Canadian-born			0.643	0.010
Visible minority			1.590	0.022
Two biological parents			1.085	0.429
Math achievement			1.182	0.001
Reading achievement			1.288	0.000
Nagelkerke pseudo R <sup>2</sup>	0.45		0.49	

Turning to Model 2, it is again the case that all variables that were statistically significant in Model 1 remain so after controlling for socio-demographic factors. Further all socio-economic variables except for residing with both biological parents significantly differentiate between those who did not pursue PSE and those who pursued a university education. The effects are in the direction expected from the literature and from the previous tables. Note that the odds ratio of visible minorities attending university is 59% higher than that for their “white” counterparts and that immigrant students have 34% higher odds ( $1 - .64 = .36$ ) of attending university (as compared to not pursuing any form of PSE) than do their Canadian-born counterparts.

## 4.2.4 Summary of multivariate analyses

The educational pathways that high reading achievers found themselves on by the age of 19 were conceptualized as gradations along a continuum from least typical to most typical, not just in the statistical sense of least to most common, but also in the sense of least to most expected, given their prior solid reading achievement. The multivariate analyses revealed both similarities and differences in the influences that resulted in particular educational transitions. This section summarizes the patterns. The first table contrasted high school non-completers (the most atypical outcome) with high school graduates; the second contrasted high school graduates (the second-most atypical outcome) with those who pursued non-university PSE; the third also compared high school graduates, but this time with those who enrolled in a university program. Comparisons of the odds ratios across the three sets of analyses suggest the following:

- Overall marks obtained in high school are key to understanding all educational transitions. High school non-completers performed worst in this respect, followed by graduates, non-university participants of PSE and university students. In other words, young people with high reading achievement who failed to live up to their potential were unable to convert their prior reading ability into better marks.
- One reason that some young people failed to convert their reading ability into better marks is that they failed to put sufficient effort into their academic work. Academic effort differentiated the high school non-completers from those who graduated, and also differentiated the graduates who did not pursue any PSE from those who enrolled in university. On the other hand, academic effort seemed not to be a factor differentiating high school graduates from non-university PSE participants—these two groups were quite similar once marks and other relevant factors were controlled.
- The negative effects of peer culture associated with drinking and marijuana/hash use are most pronounced in the contrast between high school non-completers and high school graduates.
- The positive effect of one's peer network increases with increasingly better educational outcomes. Stated differently, not only are non-completers least likely to have peers who value education and plan to pursue PSE, but these youth are least likely to be influenced by their friends' educational plans. Vice versa, university students are most likely to have peers who value education and the presence of such peers appears to especially encourage them to attend university rather than curtail their education with a high school diploma.
- The role of parental aspirations shows the same trend: it is statistically insignificant for non-continuers but increases the odds of non-university participation by 30% and of university participation by 84% (in all instances as contrasted with high school completion).
- Participation in extracurricular activities is also unimportant for understanding high school non-completion. It becomes an important factor for pursuing post-secondary education, and especially for pursuing a university education.

- Working 20 hours or more per week does not affect young people's decision to drop out nor does it delay their progression through high school. However having intense paid employment does reduce the odds of participating in PSE, and appears to be especially important in the decision not to enroll in university.
- Participation in school-provided career- and educationally-preparatory activities appears to be important for avoiding the worst educational pathways. That is, those who participated in such activities had higher odds of completing high school and of pursuing a non-university PSE.
- Even after controlling for academic performance and socio-demographic factors, males are most likely to not fulfill their academic promise. Thus, the odds of females not completing high school are 25% lower than for males. About the same odds were found for females pursuing non-university PSE rather than stopping with just a high school completion certificate. Females are especially likely to choose a university education, having 65% higher odds for this transition than their male counterparts.
- Having two biological parents appears to be a buffer that facilitates high reading achievers to at least complete high school. Family structure seems not to be a factor for the other transitions. It may be that the presence of two parents acts as a buffer against undue negative peer influence.
- Immigrant families also play a protective function that minimizes the chances of their children not completing high school, and maximizes the odds of them enrolling in university. While visible minority youth are as likely as others (if not more so) to not complete high school, if they complete high school they are more likely to pursue a university education than are their "white" counterparts.
- Household income is not a significant factor for any educational pathways except for participation in a university education, suggesting that the cost of a university education is a barrier for some high reading achievers achieving their educational potential. Parent's own level of education is implicated in their children's likelihood of pursuing PSE, especially a university education.
- The activation of parental cultural and economic capital is important for better educational outcomes. For example, access to home computers is not a factor accounting for young people's failure to complete high school. It does, however, modestly increase their odds of pursuing both university and non-university PSE.

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# *Appendix:*

## *Definitions of constructed variables*

### **Academic effort (IRT scale)**

A previously constructed scale of academic engagement, comprised of items such as amount of time spent on homework and frequency of skipping classes.

### **Alcohol/marijuana use (index)**

Use of alcohol (f2q76) and marijuana/hash use (f2q78) were recoded and combined such that a score of 0 indicates neither and a score of 2 indicates having consumed both.

### **Extracurricular participation (index)**

Participation in school (f2q56b) and non-school based (f2q57) were recoded and combined, such that a score of 0 indicates neither and a score of 2 indicates participation in both.

### **High school job/education preparation (standard score)**

The number of job/future education preparatory activities provided by their school (d2q07a - d2q16) that respondents had participated in were counted and then converted to standard scores.

### **Peer educational support (standard score)**

Responses to how many of their peers the respondent thought completing high school was important (f2q76) and how many planned to pursue PSE (f2q78) were combined.

### **Employed 20 or more hours per week (indicator variable)**

Constructed from a derived variable (hpdhsd2), such that a score of 1 indicates having worked at least 20 hours per week.

### **Parental educational support (index)**

How important the respondent believed it was to their parents that they complete high school (u2q57) and to pursue PSE (u2q58) were recoded and combined so that a score of 0 indicates neither was very important and a score of 2 indicates both were very important.

### **Educational aspirations (standard score)**

M2q31 was first recoded into approximate years of education the respondent desired and then transformed into a standard score.

### **Home ICT (standard score)**

Respondents were asked how often a computer was available at home for their use (r2q07). Responses were converted into standard scores.

### **University-preparatory classes (index)**

A score of 0 indicates that neither the last math nor language class was taken at a university-preparatory level, whereas a score of 2 indicates that both were taken at a university-preparatory level.

### **Marks (standard score)**

The mean of student's self-reported average marks and mark obtained in math and language. Parallel measures were constructed for marks at ages 15 and 17.

### **Canadian born (indicator variable)**

Parent report was used in the first instance. Where parent information was not available, student report was substituted (swt16q01).

### **Parental years of education (standard score)**

Parental level of education was derived from gender and relationship of PMK to child (and from spouse of PMK). Where information from the PMK was not ascertained, the youth report was substituted. The level of education was then converted to estimated number of years of education. The mean of mother's and father's estimated years of education was then computed to represent parental years of education.

### **Household income (quintiles)**

Household income was derived from the parent questionnaire. Income was recoded into quintiles to remove the problem of outliers and skewed distribution.

### **Missing value indicator**

A missing value indicator was constructed on the basis of the presence of missing values on those variables that had the highest proportion of missing information (parental SES, peer support, and participation in extracurricular activities).