EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF YOUTH OF IMMIGRANT ORIGIN: COMPARING MONTREAL, TORONTO AND VANCOUVER

Submitted to the Canadian Council on Learning and Citizenship and Immigration Canada

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EXECUTIVE SUMMARY

Through secondary analysis of provincial and school-board data banks, this project examines and compares the educational pathways and academic performance of students who do not use at home the majority language used in schools in Canada's three major immigrant destinations, Montreal, Toronto and Vancouver (e.g. non-French speakers in Montreal and non-English speakers in Toronto and Vancouver). In order to ensure comparability between three school systems where high-school entrance and duration times differ, the cohorts are adapted to reflect each site's specific schedule. The population is the cohorts entering high school in 1999 in Montreal and Vancouver and 2000 in Toronto; all were expected to graduate in 2004 if they did not accumulate delays.

Descriptive data on similar individual, schooling process, and school-context characteristics, as well as common indicators of educational pathways and academic performance, are first presented for the target and 10 linguistic subgroups and contrasted to the native speaker baselines at each site. A multivariate regression analysis is later conducted on two dependant variables (graduation two years after expected; access to university-bound or selective courses) using the same set of independent variables. Additional tables, limited to descriptive data, were also produced in Montreal and Toronto for the full immigrant student population, including a comparison of first and later generations. A final conclusion presents a reflection on comparative trends across sites as well as future directions.

The major findings of the study can be summarized as follow:

1) The target group, whether defined by language used at home or place of birth, clearly exhibits less positive features than the comparison group in term of its socio-demographic profile (gender, SES, immigrant status), the schooling process it went through (age when entering high school, level of entry into the school system, frequency of school changes, taking ESL/ESD courses or receiving linguistic support during secondary schooling), and the characteristics of the school it attended (concentration of non-English/non-French speakers, identification by provincial or local authorities as socio-economically challenged and attendance of a private vs. a public school). Although each site has specifically challenged subgroups, there is no clear ranking-order across sites in this regard.

2) Educational outcomes appear more favourable than one would expect from these risk factors. In some sites, the results of the target group are even slightly higher than that of the comparison group with regard to graduation rates, performance in various subjects, and most of all, participation in selective or university-bound courses. This advantage is enhanced, and extended to all sites, when one considers comparative performance through a multivariate regression analysis taking into account the initial characteristics of students. Then, all odds ratios for the target group as a whole, whether for graduation or for participation to selective courses, are higher than for the comparison group.

3) Nevertheless, this overall positive result masks major inter-group differences, both for linguistic or region of birth subgroups. In the specific case of linguistic subgroups, where descriptive data can be enlightened by a regression analysis, a rather-consistent hierarchy across sites emerges with, on the one hand, the highly achieving Chinese speakers and on the other hand, Spanish and Creole speakers. The profile of other groups is less consistent across sites.

4) Some interesting and largely unexplained differences were also found between the same group with control variables in different cities (for example, Vietnamese speakers in Montreal and Vancouver), between the three cities, both for the target and comparison groups (Montreal exhibiting a clearly more negative profile than the two other cities), as well as between schools with similar intake of target group students.

5) Although not as strong as the fact of belonging to a specific linguistic subgroup, the impact of gender, of various schooling process variables as well as of attendance of a private school (in the two sites where it was available) was as expected, especially regarding graduation. Boys entering a public high school one year or more late, who often change schools, and still need ESL/linguistic support are clearly at a disadvantage. With regard to participation in selective or university-bound courses, except for the linguistic subgroup variable, the factors considered in our model were less predictive. This would seem to indicate that resilience toward higher education within the target group is influenced mostly by variables which were not available in provincial/local data banks.

6) Other variables did not show the expected impact, whether based on the literature or public perception. Socio-economic factors (median family income/attendance of a school identified

as educationally challenged) were most often non-significant in the three sites, which would tend to confirm that cultural capital among immigrant families is less linked to their actual socio-economic position than for the general population. Other factors (immigrant status, level of entry into the school system and concentration of the target group) were inconsistent across sites, which points to the great variety of dynamics and cases that can be hidden by such variables.

7) Overall, there were no major differences in the factors influencing graduation for the comparison group, except for SES, which proved much more predictive. But our model explained participation in selective or university-bound courses for the comparison group much better than for the target group.

Pan-Canadian policy implications include:

1) Non-French/non-English speakers, or even immigrant students, should not be considered as a whole, as a group educationally at-risk .Thus, any *one size fits all* supplementary support for these students or for the schools they attend, is not an evidence-based policy.

2) Many subgroups exhibit a very high occurrence of risk factors, and in many instances, an important deficit in terms of graduation, performance in different subjects, as well as participation in selective courses that are needed to pursue a higher education. Without proposing that policies target groups on the basis of origin or language, school authorities, with the help of academics, need to understand better what lies behind the important inter-group differences encountered in the three cities. This could serve to better support families in assessing their educational values and strategies or the school system in critically examining the extent to which its functioning equally favours all groups.

3) Results also show that the many programs and actions that educational authorities already carry to support students who enter high school at a later age than expected, change schools often or need ESL/linguistic support are well funded and susceptible of having a positive impact on youth of immigrant origin. Nevertheless, a more systematic and increased support may be needed if our school system is to achieve a genuine equity of results for all students.

4) An increased collaboration between provincial educational authorities is also recommended, on the one hand, to improve and harmonize the administrative data they collect on

immigrant/minority students and, on the other hand, carry further research to better assess their comparative results with that clientele, and the systemic factors that explain differences.

CHAPTER 1

INTRODUCTION*

* Written by Marie Mc Andrew with the collaboration of other project members.

1.1 PRESENTATION OF THE PROJECT

1.1.1 Origin and relevance

In a context where equal opportunity has emerged as a fundamental normative benchmark, schools in modern democratic societies are expected to foster the academic success of a very diversified student population, both with regard to abilities and interests, and to social, linguistic and cultural characteristics (Mc Ewen, 1995; Crahay, 2000). This is a particularly big challenge in Canada. Indeed, on the one hand, our various provincial school systems tend to stream students on different educational pathways, rather late in the overall schooling process, at least when compared with other countries (Conseil des Ministres d'éducation du Canada, 2003). On the other hand, Canada pursues an active immigration policy, which has many consequences for education.

The number of immigrants entering the country every year, 236 578 in 2007, has significantly increased over the past 15 years (CIC, 2008). These immigrants are coming from more diversified countries, and also from countries that do not have French or English as their official language[1]. The selective nature of the Canadian immigration policy also results in a relative class balanced composition of the immigrant flux, which stands in contrast with other societies where immigration is less planned (Mc Andrew, 2004).

Discrepancies between expected and achieved educational attainments and/or pathways among immigrant youth, particularly where differences exist between youth from different backgrounds must be scrutinized. Indeed, for immigrant parents, successful integration into their new country is often assessed, not so much by their current situation, but according to the quality of relationships that their children are able to establish with the school system, and most of all, the return they get from it in the longer run.

In this regard, much qualitative research, based on the observation of classrooms and schools or on surveys with teachers, students or parents, points to the fact that the academic integration of first, and even second-generation immigrant youth in Canada is not without flaws. This is the

[1] With the exception of Quebec, where immigrants with a prior knowledge of French now represent more than 60% of the total influx.

case particularly for new arrivals who do not have French or English as their mother tongue, and students who are visible minorities (Mc Andrew & Cicéri, 1997; Beiser *et al*., 1998; Anisef & Kilbride, 2001). However, there is a paucity of large-scale quantitative studies which assess the current state of academic performance and educational pathways of immigrant students in the Canadian context (Anisef *et al*., 2004).

This can largely be explained by the fact that education falls under ten different provincial and three territorial authorities. Each has its own educational structures, policies and programs, as well as their own way of collecting educational data. Although these bodies exchange information and cooperate through the Council of Ministers of Education, Canada, there has never been a systematic comparative study of their approaches or their results regarding the academic integration of immigrant students. Both at the provincial and school board levels, the interest in large-scale assessments of academic performance and educational pathways of immigrant or minority students is rather new[2].

Some national data, either collected regularly or periodically through sampled studies (Statistiques Canada, 2008; Bussière *et al*., 2004), have been used to partially fill the gap in our knowledge, but they present shortcomings. When the focus is on final attainments, as is the case of Statistics Canada, limited information is provided on the educational pathways that students follow and the specific obstacles they may encounter through their formal mandatory schooling. In contrast, studies such as those carried under the framework of the Program for International Students Achievement (PISA), provides valuable information on the competencies of immigrant students. However, they do not illustrate if the strengths and weaknesses were conducive to a successful school career, nor do they take into account the fact that a substantial proportion of underprivileged immigrant youth may have dropped out by age 15 when most of the tests are carried out. The contribution of such studies to the identification of the factors that influence school performance is also rather limited, specifically with regard to factors that influence policy development.

[2] With the exception of the Toronto Board of Education, the Toronto District School Board and to a lesser extent of the Ministère de l'Éducation, du Loisir et du Sport du Québec.

The current study originated from a commitment by Citizenship and Immigration Canada (CIC) and by a group of Metropolis researchers. The purpose was to explore in greater depth what information could be learned from provincial or local data banks in order to define the main parameter of a pan-Canadian project on academic performance and educational pathways of youth of immigrant origin. This was done through two feasibility studies (Anisef *et al*., 2004; Hébert *et al*., 2005), covering four provinces (Quebec, Ontario, British Columbia, Alberta). The researchers conducted a critical assessment – both in terms of the relevance and the comparability of indicators that could be used to define the target group and assess its results.

The researchers also examined the extent to which these data had been exploited, either by educational authorities or academics. The main conclusions were: that provincial data banks represented a relevant and underused source for an assessment of the topic at stake and that although each had strengths and weaknesses, there were clearly some provinces[3], or in some instances metropolitan school boards[4], whose data should be explored first for the wealth of information they could provide. The authors also proposed a *lowest common denominator approach* for defining a comparative project, as well an alternative, less encompassing strategy, which served as the basis for defining the main components of the current study.

1.1.2 Main components

The final project was launched in 2007, and was limited to three of the four contexts that were initially envisioned (i.e. Quebec, Ontario and British Columbia). Furthermore, given the limited availability of data available on an Ontario-wide basis, the focus was shifted to the three major immigrant-receiving cities in Canada: Montreal, Toronto and Vancouver. The information for Montreal and Vancouver were extracted from province-wide data banks and that for Toronto from the TDSB. In order to ensure comparability between three school systems where high school entrance and duration time differ, we had to adapt the cohort to reflect each site-specific schedule. Thus the target group for the study is students who were expected to graduate in the three cities in 2004, if they had followed the "normal" path, e.g. those who started high school in 1999 in Montreal and Vancouver, and in 2000 in Toronto.

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3 Quebec and British Columbia.

4 The Toronto District School Board (TDSB).

The study is comprised of three components. First a set of descriptive data common to the three sites was developed. It uses as the criteria for defining the criteria, language used at home, since no information is available in Vancouver on immigrant status (e.g. being born in or outside Canada). Due to time and resource limitations, we chose to focus on students whose parents had indicated that the language used at home was not the language of the majority school system (e.g. non-French speakers in Montreal and non-English speakers in Toronto and Vancouver)[5]. After setting the local context and giving an overview of related provincial or school board studies, each site report discusses the educational pathways and academic performance of non-French/non-English speakers through a set of 15 tables presenting various characteristics of the target group, the comparison group and 10 selected subgroups, as well as their comparative educational pathways and academic performance. In both cases, we used common variables, with specific add-ons in some contexts, that were defined through a lengthy process taking into account both the limits of the data banks and the objective of furthering comparability as much as possible (see section 1.3.1.1).

The second component of the study is a multivariate regression analysis (see section 1.3.1.2), with the same target group and comparison group but a limited number of subgroups, with two dependent variables: graduation rates two years after expected and access to university-bound or selective courses. The variables used to explore the characteristics of various groups in the first component were used as independent variables, although in some instances slightly modified, to identify the factors that influence the schooling experience of non-English/non-French speakers and various subgroups.

Finally, in the case of Montreal and Toronto, descriptive tables similar to those produced for the three sites were developed using immigrant status (e.g. being born in or outside Canada) to define the target and comparison groups. Data on six subgroups based on region of origin are also provided (as explained in section 1.3.2). An analysis of both characteristic and outcome trends are presented. Due to time and resource limitations it was not possible to carry out a multivariate regression analysis for the two sites data.

[5] This was not an option for Toronto as we were using TDSB data. In the case of Montreal, although English schools receive some ethnic minority students, they have almost no immigrants and less and less second-generation students due to Bill 101. As for Vancouver, the French school system is limited in scope and does not receive many immigrant or second-generation students.

1.1.3 Research questions

The project aims at answering the following questions:

1) What are the similarities and the differences between the target group, various subgroups and the comparison group with regard to some major socio-demographic, schooling process and school characteristics?

2) What are the similarities and the differences between the target group, various subgroups and the comparison group with regard to various indicators of educational pathways and academic performance?

3) After accounting for differences in characteristics, do the target group and selected subgroups succeed better, equally or worse than the control group?

4) What are the factors that significantly influence educational pathways and academic performance among the target group and selected subgroups?

5) Do these factors affect the comparison group in the same manner?

6) What are the main similarities and differences across sites with regard to questions 1 to 5?

Answers for questions 1 and 2 are provided using data based on language used at home (three sites) and place of birth (two sites) as the defining criteria for the target group. Questions 3, 4, 5 and 6 are limited to data pertaining to the three sites.

1.1.4 Team and partnerships

Such an endeavour could be realized without a wide network of researchers and partners, as well as a strong commitment by funding agencies. Coordinated by Marie Mc Andrew, the Canada Research Chair on Education and Ethnic Relations of the University of Montréal, the project was carried out by three site teams, each headed by a site coordinator: for Montreal, Jacques Ledent from *Institut national de la recherche scientifique* at the *Université du Québec*; for Toronto, Robert Sweet from Lakehead University; and for Vancouver, Bruce Garnett from the School

District 36 (Surrey). Each site team included two to four members[6], both academic and school board researchers, some of whom were closely associated with the Metropolis project, especially in Montreal and Toronto.

Many other people were also involved in the project, in terms of providing support, definition and feedback. First, our two funders – who were much more than that – namely, Charles Ungerleider, the director of Research and Knowledge Mobilization for the Canadian Council on Learning, who brought both his knowledge of provincial civil service and of academic research to our endeavour[7]; and Martha Justus and Jessie-Lynn MacDonald, respectively, director and research manager at the Research and Evaluation Branch of Citizenship and Immigration Canada, who often put us back on task, especially with regard to comparability and policy relevance. Provincial partners were also central, not only in gaining access to the data, but also in providing us with a wider understanding of their specific context and educational challenges. We want to thank in this regard, Claire Chamberland, the director of the *Direction des services aux communautés culturelles* of the *ministère de l'Éducation, du Loisir et du Sport* (MELS), Robert Brown, who played a double role as a full researcher of the Toronto team and as our link to the Research and Information Services of the Toronto District School Board, and Maria Adamuti-Trache, from EduData Canada in Vancouver. The Surrey District School Board also gave teaching time release for the Vancouver site coordinator, Bruce Garnett.

1.2 THE FACTORS INFLUENCING SCHOOL ACHIEVEMENT AMONG YOUTH OF IMMIGRANT ORIGIN: AN OVERVIEW OF THE LITERATURE

Unlike other social categories, such as gender or social class, ethnicity[8] does not hold an easy-to-predict unidirectional relationship with achievement. Even when one specifically focusses on markers associated with migration, Canadian and international literature clearly illustrates the

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[6] Respectively, apart from the coordinator, in Montreal, Rachid Ait-Said from Institut national de la recherche scientifique, formerly from the MELS, and Jake Murdoch from the Université de Montréal; in Toronto, Paul Anisef from York University, Robert Brown from the Toronto District School Board and David Walters from University of Guelph; and in Vancouver, Cheryl Aman, an independent researcher associated with UBC.

[7] He was also closely associated with the feasibility study of 2004.

[8] Defined here in its sociological sense as a communalization or abscription process, based on the belief of a common or putative ancestry and a variety of markers, such as national origin, immigrant status, language, "race", religion or even caste . (Schermerhorn, 1970).

wide variety of educational profiles and experiences that can be associated with various subgroups defined by any of these markers.

This complex reality is sometimes masked in societies where immigration and poverty are closely linked, by the overlapping of the two phenomena, but in contexts where immigration is more class-balanced, such as Canada and the USA, variability is the norm. Consequently, identifying the factors that explain the differences in academic achievement and educational pathways among immigrant/minority youth is one of the main objectives of research.

In this regard, there are many explanations, most complementary but sometimes opposed by various authors. **Socio-economic theories** stress the close relationship that exists between SES and school results, both in the whole school population (Haveman & Wolfe, 1994; Bradley & Corwin, 2002) and among immigrant students (Portes & Zhou, 1993; Portes, 1994; Zady & Portes, 2001; Zhou & Lee, 2007). This school of thought identifies poverty as the main explanatory factor in school failure, as it would generally be associated with a deficit of cultural capital among families, and with a lack of active involvement in the educational promotion of their children. It also shows the contribution of schooling to the *segmented* assimilation of different groups of immigrants.

However, other research shows that SES does not have the same overwhelming impact among immigrant youth as in the full student body. On the one hand, even among immigrants with a high socio-economic status, the **mastery of the language of schooling** is a lengthy process. Thus, factors such as age at arrival or the prior exposure to the host language cannot be overlooked (Collier, 1989; Cummins, 2000). Linguistic competencies especially have an impact on disciplines with strong linguistic and cultural components, such as History and Literature. The latter presents greater challenges for students whose first language is not the language of schooling compared to scientific disciplines such as Mathematics or Physics (Chamot & O'Mally, 1994; Duff, 2001).

On the other hand, many Canadian and European studies show that underprivileged immigrants or second-generation students tend to over-perform when compared with native peers of the same socio-economic background (Toronto Board of Education, 1999; Vallet & Caillé, 1996;

Mc Andrew, 2001). Some explain this phenomenon by suggesting immigrants represent a subsample of particularly motivated individuals, and may be subject to family pressures placed on students to succeed in order to fulfill the parents' dreams. Nevertheless, as this **migratory effect** is inconsistent, a variety of **socio-cultural explanations** have been invoked.

Ogbu (Ogbu, 1992; Ogbu & Simmons, 1998) stress, as the main factor explaining differences, the existence of a **conflictual or a positive relationship with the host society** and the integration model it proposes. Individuals belonging to *voluntary minorities*, most often immigrants who choose to settle in the new country for socio-economic reasons, would strongly adhere to an ideology of social mobility through schooling and would consider the obstacles they encounter as temporary. In order to foster the school success of their children, they would be willing to forego their preoccupation for linguistic and cultural maintenance, as they essentially hold an instrumental relationship with schooling. In contrast, individuals belonging to *involuntary minorities*, mostly groups whose presence in the host country is the result of conquest, colonialism (or neo-colonialism) or slavery, would distrust majority institutions and the dominant culture and would not believe that schooling can really be a way out for their children.

Others focus on the **characteristics of the home country culture**, especially the values that are closely linked with school success, even in our modern school system: conformism, respect for authority, hard work as well as the valorization of the written world (Peng & Wright, 1994; Samuels *et al*., 2001; Chow, 2004). In some communities, therefore, ethnicity would be a strong cultural capital generating many practices, both in the family and within the community, that are conducive to school success.

Finally, other studies insist on the importance of **systemic factors**, such as the reaction of the school system and of specific schools towards immigrants in general and towards various sub-groups (Gillborn & Gipps, 1996; Johnson & Acera, 1999; Dei, 1996). This school of thought is particularly interested in the impact of teacher attitudes and expectations on the success of various students, who are largely influenced by an unstated pecking order reflecting national and international dynamics. It also examines various indicators of institutional discrimination, such

as the variance between schools with similar characteristics as well as early streaming of immigrant students into less prestigious courses.

In our study, we are touching, to varying degrees, on many of these systems of explanation but in a non-systematic manner. Indeed, the variables we use in our model were not selected on the basis of their theoretical relevance, but were closely linked to the content of the data banks of various provincial or local educational authorities. The strength of the study lies in pre-migratory and linguistic factors as well as in schooling process and school characteristic variables. However, its SES status indicators, and most of all, its capacity to grasp the socio-cultural phenomenon is more limited.

Indeed, different factors that could be hidden under the variables of language or region of origin, such as family practices and strategies, values, positive or conflictual relations with schooling, cannot be assessed through our methodology. With regard to systemic factors, the study provides an extensive set of indicators at a macro or mezzo level, such as the fact that schools belong to the private or public sector, the extent to which they face an educational challenge they face, or the concentration of the target group they experience. However, we cannot identify which practices or attitudes explain the differences of results encountered between them[9].

Nevertheless, the breath of our endeavour certainly sheds a rather encompassing light on the state of academic performance and educational pathways among students who do not speak the majority language at home and, to a lesser extent, among immigrant students, as well as on many factors that influence it.

1.3 DETAILED METHODOGY OF THE STUDY

1.3.1 The data pertaining to the three sites

As mentioned above, the first part of this study is devoted to a descriptive analysis and a multivariate analysis of the educational pathways and academic performance of students whose language used at home is different from the majority language of schooling in each context (i.e. the non-French speakers in Montreal and non-English speakers in Toronto and Vancouver).

[9] These are elements that may be elucidated through qualitative research.

Thus, the comparison group is English speakers in Toronto and Vancouver and French speakers in Montreal, again as defined by language used at home. Every student who started secondary schooling in 1999 in Montreal and Vancouver, and in 2000 in Toronto were included in the sample[10]. The units studied coincide with the Toronto District School Board in Toronto, while in Montreal and Vancouver, a number of school boards covering what is known there as the metropolitan area were selected, specifically, three in Montreal and 12 in Vancouver.

Private school students were included in the two contexts where this variable was available (e.g. Montreal and Vancouver)[11]. In Montreal, more than 30% of students attended private high schools, which are highly subsidized by the Quebec Government, and not including them would have created a very strong negative bias in the Montreal data[12]. Moreover, keeping this variable in two sites provided some information which may be of interest to policy-makers. Because many students move from public to private schools, we defined, in both contexts, a public student as a student who started high school at a public school, regardless of where he or she may have graduated (and *mutatis mutandis*, for a private school student).

In the descriptive tables, we also provided specific data for 10 subgroups based on language. These are listed in each case study and included, for each site, the five most numerous groups plus a choice of other groups among the top five of the other sites. We also sought to strike a balance between high, middle and low achievers, based on preliminary graduation rates data.

1.3.1.1 Descriptive data

As shown in Table 1, 10 sets of tables presenting various socio-economic, demographic, schooling process and school context characteristics of the target group, the comparison group

[10] A small of students who actually started high school in 1998 or 1999 depending on which city, and repeated either *Secondaire 1* or Grade 8 were also included, as we could not eliminate them from the data bank.

[11] Although this raised many methodological debates, after weighing competing options, it was felt that this was the best solution

[12] In Vancouver, the percentage is more limited (10.6%), so either option would not have significantly affected the representativeness of the data. In Toronto our data is limited to a public board, thus there is no information on students attending either the subsidized catholic sector (around 1/3 of the total school population) or independent elite private schools (less than 5%).

Table 1
Variable definitions:
Characteristics of the target group, the comparison group and subgroups

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Socio-economic and demographic variables

1) Gender:
   - Male / Female

2) SES:
   - Median family income, in enumeration area inhabited by students (divided in five quintiles)

3) Immigrant status:
   - Born in Canada/Outside Canada (only Montreal and Toronto)

Schooling process variables

4) Age when entering high school:
   - Students early/on time/1 year late/2 years late (ref.: expected "normal" age of entry in each school system)

5) Level of entry into the school system

Toronto	Students already in TDSB data bank in primary or junior high	Newcomers entering high school from Canada (can include inside or outside Ontario)	Newcomers entering high school from outside Canada
Montreal	Students already in data bank in primary school (only in a school board in the Montréal region)	Newcomers entering high school, born elsewhere in Québec or Canada	Newcomers entering high school born outside Canada
Vancouver	Students already in data bank in primary or junior high (only in a school board in the Vancouver region)	Newcomers entering high school from within BC	Newcomers entering high school from outside BC (can include other provinces and outside Canada)

6) Frequency of school changes:

- No school change, one school change or more

7) Taking English as a second language or English as a second dialect (ESL/ESD) courses (Toronto, Vancouver) or receiving various French language learning services (*soutien linguistique*) (Montreal) during secondary schooling

School context variables

8) Concentration of non-English (or non-French in Montreal) speakers in school. Percentage of students in a school with:

0-25%	26-50%	51-75%	More than 76%	Of the target group (non-English/non-French speakers)

9) Attendance of a school defined by provincial or local authorities as socio-economically "challenged" (see each site report for specific details)

Toronto	High and medium high external challenge schools vs. medium-low and low challenge schools
Montreal	Deciles 8, 9, 10 vs. 1 to 7 of Québec *Agir autrement* indicator
Vancouver	Deciles 8, 9, 10 vs. 1 to 7 of a similar classification developed by the research team

10) Attendance of a private vs. a public school (Montreal and Vancouver only)

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and subgroups were produced. Six of them were defined in an identical manner across the three sites: gender, SES (median family income)[13], age when entering high school, frequency of school changes, taking ESL/ESD courses or receiving *soutien linguistique* during secondary schooling[14], and concentration in schools attended by non-English/non-French speakers. Two other variables covered the same concept, but had to be adapted to the local context and the structure of the data bank: level of entry into the school system and attendance at a school

[13] It must be pointed out, however, that our measure for SES is a proxy as we do not have individual information for each student, but rely on census data at the level of the dissemination area where the student lives.

[14] Due to data limitations, it is not possible to know if students received any ESL/ESD or *soutien linguistique* in primary schools. Thus, defined in this manner, the indicator does not measure the impact of such a program but the disadvantage linked to the fact that students either still need it or did not get it in primary school, most likely because they had not yet arrived in the country.

defined by provincial or local authorities as socio-economically challenged. In the first instance, differences are rather significant, so comparative data in this regard should be used with caution. In the second instance, Toronto and Montreal's data are more policy relevant, as they closely correspond to criteria retained by provincial or local authorities to distribute extra funding, while the Vancouver site crafted indicator is more exploratory. Finally, two characteristics are limited to two sites: immigrant status (e.g. born in/outside Canada) for Montreal and Toronto, and attendance of a private or public school for Montreal and Vancouver.

With respect to the indicators used to grasp the educational experience of non-English/non-French speakers, there are two sets of variables. The first one focuses on graduation rates and educational pathways. The main indicator in this regard, which is similar across the three sites, is graduation two years after expected. Information is also available on whether students who have not yet graduated are still within the studied jurisdiction. However, for the remaining missing students, the Toronto data is more precise as we can distinguish students who transferred to another educational jurisdiction anywhere in Ontario, Canada and the world, from students who dropped out. In the case of Montreal and Vancouver, we only know if students transferred to another educational jurisdiction within the province. So the missing students cannot be fully assumed to have dropped out, as they may have left for another province or country. This data limitation was one of the motives that influenced our decision to focus on cumulative graduation two years after expected rather than on drop-out, as some other studies do.

The second set of variables reflect participation and mean results in three subject areas: the language of schooling (English in Toronto and Vancouver, French in Montreal), Mathematics and Science[15]. Participation, which is not often discussed in other studies, is particularly important. It helps qualify the comparative mean results across groups, as they do not have the same percentage of students who drop out before the test was actually taken. Additionally, in school systems that have become more and more *de facto* streamed through course selection, it gives some indications about future educational pathways at higher levels of study (such as college or university).

[15] Science excludes Biology for reasons of comparability across sites.

As there were many courses that could be taken in any of these three subjects, especially in Toronto, we had to agree on a methodology for course selection that ensured some comparability while respecting local specificity. In Montreal and Vancouver, at least one selective course (which is a requirement to further access to college or university), and one non-selective course were chosen for each subject, except French in Montreal where there is only one compulsory course. These were grade 12 or *Secondaire 5* courses, unless the non-selective course was taken by most students in grade 11 or *Secondaire 4*[16]. Thus, as can be seen in Table 2, in both contexts, we produced data for six courses which were, in some instances, aggregated scores. When a student was enrolled in more than one course, we kept only the participation and marks from the most selective course taken at the highest school level. In Toronto, given the great number of courses available in each subject and the fact that none are compulsory, data on the participation and marks in the most demanding course taken at the highest school level by each student was selected during the first phase. Then, different course results in each subject were aggregated into four categories corresponding to the four streams currently used at TDSB: university-bound, mixed, college-bound and workplace.

Table 2
Variable definitions:
Educational pathways and academic performance indicators

1. Graduation rates and educational pathways

	Students					
Toronto	Having graduated within TDSB			Still in the system (TDSB)	Who transferred to another educational jurisdiction (can include and does not distinguish between inside/ outside Ontario/ outside Canada)	Who dropped out or are absent
	On time	1 year after expected	2 years after expected			

[16] Let's recall that high school in Quebec is comprised of five years, respectively named Secondaire 1, 2, 3, 4, 5.

	Students					
Montreal/ Vancouver	Having graduated within a school board of the Montreal or Vancouver region			Still in the system (Montreal/ Vancouver)	Graduated in another educational jurisdiction within the province	Absent from the data bank (may include students who transferred to another province or country, as well as students who dropped out)
	On time	1 year after expected	2 years after expected			

2. Participation and mean results in various courses in the language of schooling (English in Toronto and Vancouver, French in Montreal), Mathematics and Science

3. Course selection

	Montreal				**Vancouver**	
	Selective		Non selective		Selective	Non selective
Language	Français langue d'enseignement Secondaire 5				English 12	Communication 12
Math	Math 536 Sec. 5	Middle track: Math 526 Sec. 5	Math 514 Sec. 5		Principles of Math. 12	Essential of Math 11 + Application of Math 11 (aggregated into a global score)
Science	Physique 534, Sec. 5 Chimie 534, Sec. 5 (aggregated into a global score)		Physique 434 Sec. 4		Physics 12 Chemistry 12 (aggregated into a global score)	Science and Technology 11

Toronto				
English	University-bound courses (aggregated into a global score)	Mixed courses (aggregated into a global score)	College-bound courses (aggregated into a global score)	Workplace courses (aggregated into a global score)
Math				
Science				

1.3.1.2 Multivariate regression analysis

Two dependent variables were the subject of the multivariate analysis. The first one, cumulative graduation rate two years after expected, was similar across the three sites[17]. Next, we wanted to explore the probability of the target group and some subgroups having access to post-secondary education. The second dependent variable was thus defined as follows: Montreal - participation in the three courses (Math, Physic and Chemistry) needed to continue CEGEP education in Science. In Toronto - participation in any grade 12 university-bound courses in Math, English and Science. In Vancouver - participation in Principles of Math 12. Participation is defined not by the fact that the student took the test, but by the fact that he/she succeeded. In the case of this second variable, the target and the comparison groups were also redefined to ensure that the analysis did not become a self-fulfilling prophecy: the sample was limited to students who had remained long enough in the school system to show a mark for any grade 12 or *Secondaire 5* tests in the given subject.

With respect to the independent variables, they are closely linked to the indicators produced for the descriptive analysis, although some had to be slightly adapted. Classification is also different, as in a two-level regression analysis, we distinguish mainly between variables that are linked to the individual[18] and those that are related to schools.

Table 3
Multivariate regression analysis:
Independent variables definitions

Individual level

1) Gender (binary)
   - Boys/Girls

2) SES (continuous)
   - Median family income in enumeration area inhabited by students

[17] It actually means six years after entry to high school in Toronto and Vancouver and seven in Montreal.

[18] After some discussion, we decided to treat the SES variable as an individual one, even if, technically, it could have warranted a third level of analysis (e.g. dissemination level).

3) Immigrant status (Montreal and Toronto only) (binary)
   - Born in Canada/Outside Canada

4) Age upon entry to secondary school (binary)
   - Early or on-time/One year or more late (in Toronto, only one year)

5) School changes (binary)
   - Yes/No

6) ESL or *soutien linguistique* received during secondary schooling (binary)
   - Yes/No

7) Level of entry into the school system (binary)
   - Montreal: Some primary schooling received in Quebec/no prior primary schooling received in Quebec
   - Vancouver: Some primary schooling received in BC/no prior primary schooling received in BC
   - Toronto: Already in grade 8 in TDSB and/or in another Canadian educational authority/ Arrived in secondary school from abroad

School level

8) Percentage of the target group in the school (continuous)

9) Attendance of a school identified as educationally challenged (binary)
   - Yes/No

10) Attendance of a private or a public school (Montreal and Vancouver only) (binary)
   - Yes (private)/No (public)

As can be seen in Table 3, six variables are common to the three sites and defined in a similar manner, e.g. for individual variables: gender, SES, school changes, ESL or *soutien linguistique* received during secondary schooling, and for school level variables: percentage of the target group in the school and attendance in a school identified as educationally challenged. Two others are common to the three sites, although defined in a slightly different manner: age upon entry to secondary school, where the difference is minimal, and level of entry into the school system, which reflects the specificity of this indicator in each school system, as described above. Finally, two variables are shared only by two sites: immigrant status (Toronto, Montreal) and attendance of a private or public school (Montreal, Vancouver). There was some methodological debate about the relevance of keeping these in the regression analysis, even more than in the descriptive data, as doing so precludes us from strictly comparing numbers in the common comparative

conclusion. Nevertheless, given that each site report must be read in its own context with all its richness, and that funders were interested in the impact of some variables that were not available in other sites, we settled for this last option. Indeed, even without this limit, it would have been difficult, given the differences between the three school systems and some indicators across the three sites, to venture further than proposing a comparison of trends in our final comments.

Since we have both students and school level information, the statistical analysis employs a multi-level model where individuals (level 1) are nested within school (level 2). Moreover, given the dependant variables are categorical (yes/no) and not continuous, in regressing the level 1 outcome on both level 1 and level 2 variables, we could not use a hierarchical model but employed a mixed logistic regression model[19]. In order to keep an already very complex set of data easier to analyze, especially from a comparative perspective, it was decided not to include interactions in the regression analysis.

The three site reports follow a similar process in their presentation of regression analysis data, using as the dependant variable, first, graduation rates two years after expected, and second, access to university-bound or selective courses. We first explore if, all things being equal, the target group and various subgroups[20] succeed better, equally or worst than the comparison group. This is done by isolating the impact of belonging to the target group or different linguistic subgroups in a regression analysis that takes into account all the other variables and uses as its sample the full student body. We then turn to the identification of the factors that influence the results of our target group and linguistic subgroups in the tables dealing specifically with these students. The global impact of individual and school characteristic variables are first assessed. Then, we give an overview of the degree of significance and breadth of impact of each variable considered. Finally, we try to assert if the factors shown as having the highest influence for the target population and subgroups are specific to them or widely shared with the comparison group. The relevance of this question is twofold. On the one hand, as seen above, other studies

[19] With such an approach, it is impossible to evaluate the variance explained by specific groups of individual factors (e.g. socio-demographic, schooling process). But it is possible to identify the percentage of the total variation at the school level which is explained by differences in the students they received, at least with regard to the variables we included in our model. This data is presented in the relevant regression analysis tables, as a proxy for the impact as a whole of the individual variables included in our model.

[20] Limited here to 5 or 6, due to statistical requirements regarding minimal size.

show that some factors, such as SES, have less explanatory power for some immigrant groups than for the full population, which is an interesting theoretical issue. On the other hand, if all the groups share many factors, this would point to the relevance of mainstream and generic policies and programs in answering the need of our target group (and vice-versa), which is a highly policy-relevant question.

1.3.2 The data available only in Montreal and Toronto

As stated above, our analysis of two sites data regarding academic performance and educational pathways of students born abroad was only descriptive. The indicators used in this regard closely follow the methodology outlined in section 1.3.1.1, slightly adapted at times to take into account the new definition of target and non target group (born outside Canada/born in Canada). The main difference in this regard concerns the definition of the subgroups which were based on language and were non-exhaustive across the three sites, while they were defined in the two sites data by a set of regions of origin that cover the world. To identify those, we produced frequency tables for our target group, for each of the 18 regions identified by Statistic Canada in its classification. Five common regions were then retained for both sites: Eastern Asia, Southern Asia, Western Central Asia and the Middle East, the Caribbean and Bermuda and Eastern Europe. These were the five most common regions for the Toronto site and for four of them in Montreal (Eastern Asia, a rather inescapable region, was only in the 9th position). Each site also decided to add a sixth region that corresponded to the specificity of its clientele, e.g. Northern Africa for Montreal (the 5th most important region), and Eastern Africa for Toronto (the 6th most important region).

CHAPTER 2

MONTREAL SITE REPORT*

* Written by Jacques Ledent with the collaboration of other Montreal team members.

2.1 INTRODUCTION

2.1.1 Context

According to the 2001 census, French is the mother tongue of slightly over two-thirds (69.1%) of the population of the Montreal CMA and English the mother tongue of about 1 in 7 (14.1%). Those whose mother tongue is neither French nor English constitute about 1 in 6 (16.9%). Because immigrants who settle in Montreal tend to reside in the central city (Island of Montreal) rather than in the suburbs, the school population on the island of Montreal includes a much higher proportion of students whose mother tongue is neither French nor English. In 1999, close to one-third (31.7%) of all students who were enrolled in a secondary school on the Island of Montreal had a mother tongue that was neither French nor English, whereas 46.3% had French and 22.0% English as a mother tongue.[1]

This being said, of the three sites encompassed by this study, Montreal is probably the most complex for several reasons. First, the importance of the "other" official language school system in Montreal is not matched by the other two sites. At the secondary level, English language schools receives 27.6% of all students and 21.2% of the students whose mother tongue is neither French nor English. The students in this system are mainly second or third-generation students because of the cumulative effects of Bill 101 – a bill that, since 1977, has directed to French schools all newcomers to Quebec. Because the analysis in this report is restricted to the students enrolled in French schools, such an observation should be kept in mind.

Second, Quebec tends to provide private schools with more generous funding than the other provinces and thus private school attendance is somewhat more prevalent. Indeed, 39.3% of all students in secondary education attended a private school. Although it is class-based, attendance of a private school cannot be identified with a highly selective schooling favoured by the elite.

Third, of the three provinces in this study, Quebec is the one with the largest concentration of immigrants in the main city of the province, although recently the latter has declined steadily in

[1] The figures provided in this section are either for 1999 (educational data), the year of entry into *Secondaire 1* of our cohort or for 2001, the closest year available in the Census data.

the wake of the aggressive regionalization policies pursued by the provincial government[2]. As a result, the percentage of allophone (non-French/non-English) students is much higher in Montreal than in Quebec as a whole (39.4% versus 10.1%), as is the proportion of first and second-generation students (55% versus 18%). Such a fact explains why our study restricted to French schools, includes fewer school boards as well as lower numbers of students in both the target and comparison groups than in Vancouver[3], without compromising its quality.

Fourth, compared with the other provinces, Quebec can, to a large extent, select its immigrants, with the result that its student population represents a rather specific composition in terms of immigration status and language. Although each large Canadian city may have its own specificity in this regard, Montreal, and more generally the province of Quebec, welcomes a high proportion of francophone immigrants. As a consequence, Montreal's comparison group includes a high proportion of these immigrants, in any case higher than the proportion of anglophone immigrants in Toronto and Vancouver.

Fifth, from a different and more problematic viewpoint, Montreal is the least affluent of the three sites in this study. According to the 2001 census, the median family income of the Montreal CMA was $53,385 versus $57,926 for the Vancouver CMA and $63,700 for the Toronto CMA. Moreover, Montreal experiences a higher degree of poverty than the rest of Quebec as suggested by the 47.5% proportion of Montreal schools that in 2001 fell in the three lowest deciles (8, 9 and 10) in the ranking of all public secondary schools in Quebec, according to decreasing values of the index reflecting their socio-economic status.

The three school boards in this study are diverse in many respects: size, socio-economic status and ethnic composition. The *Commission scolaire de Montréal* (CSDM), which covers the central part of the Island of Montreal and is the largest school board in Quebec (the second largest in Canada) serves a highly diverse clientele with a high degree of poverty. Although the other two school boards, which are spread over the suburb-like extremities of the Island of Montreal, are also multiethnic, they cater to more specific ethnic groups: Arabic speakers

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2 In 2008, 72% of the new immigrants to Quebec settled in Montreal – that is a percentage well below the 85% plus average of the last10 years.

3 Numbers in Toronto are more in tune with those of Montreal.

(*Marguerite-Bourgeoys*) or Creole as well as Spanish speakers (*Pointe-de-l'Île*). Each of these three school boards has its own integration and intercultural education policy and pursues specific programs in this regard. Although they will not be discussed in the report, such nuances should be kept in mind when trying to interpret certain results, such as those relating to the school level variance in graduation.

2.1.2 Related studies

Assessing in Quebec, or even in Montreal, the educational pathways and/or the academic performance of students who are either allophones or first/second-generation is a rather new pursuit, especially in relation to intergroup differences and the factors that influence them. Since the 1990s, some effort has been devoted to contrasting the feats of linguistic groups as a whole (francophones, anglophones and allophones), or of students who attended *classes d'accueil*, e.g., specific French language learning services. Data on various indices that reflect either graduation rates or results in various school subjects have been published rather regularly (see, for example, *Ministère de l'Éducation du Québec*, 1994, 1996; Mc Andrew, 2001).

Analysis of these data produced a rather optimistic assessment – e.g., the performance of allophone students is equivalent to or slightly higher than that of francophones. These studies often did not distinguish students by linguistic group or immigration status, but since 2000 there has been greater interest in exploring school success among various subgroups of immigrant youth or second generation, as well as identifying the underlying factors. As highlighted in the 2004 feasibility study, this trend has been greatly facilitated by the quality of the data banks under the management of MELS, where it is possible to identify a particular group of interest and obtain the relevant indicators of school progression and attainment for such a group.

Two endeavours merit note here. The first, a study of the educational experience of black youth who enrolled in a secondary school, for the first time, between 1994 and 1996, was able to substantiate various difficulties encountered by many students, especially in the French school system (Mc Andrew & Ledent, 2006, 2007, 2008). In particular, this study pointed to a graduation shortfall (after 7 years) of 17 percentage points in comparison with the full student population. The shortfall was even higher for those students with a West Indian heritage or with

Creole or English mother tongue. In those subgroups, only 4 students out of 10 were able to obtain their high school diploma. Similar data for first and second-generation students revealed that, although they had a less dramatic schooling progression, they experienced significant problems. For example, after 7 years the graduation rate was 11.6% below that of the full population. Moreover, fewer sat for the *Secondaire 5* exams administered by the MELS, although their performance on those exams was not really inferior to that of the full population: they were slightly worse in French, equivalent in history and physics and even slightly better in English. Despite this result, it would appear that, farther down the road, these students were able to have access to a college education – a testimony to their resilience in the system. Finally, a regression analysis was carried out to identify the main factors influencing high school graduation. In the French school system, the factors were, in decreasing order of importance: being delayed in reaching secondary 3, being a male, coming from the West Indies (rather than sub-Saharan Africa), and entering the system at a later age than normal.

The second is an exploratory study by a team of MELS researchers that targeted students with an immigrant background (all first- and second-generation students, as well as third-generation students whose mother tongue was neither French nor English) and attempted to compare them with students of the third generation or more whose mother tongue was French or English (Ministère de l'Éducation, du Loisir et du Sport, 2008). Unlike the research described above, this study did not make any distinction by language of instruction, and thus it came up with slightly more positive results: the graduation rate shortfall between the target and comparison groups, which was 7% after five years, was reduced to 3% after seven years. Similar to the previous study, the results pointed out the high resilience of the target group toward higher education. It also revealed major differences between students of the second generation (the most performing) and those of the first (the most likely to have negative characteristics and to experience poor educational outcomes). Although this study did not include any regression analysis, the authors identified level of entry into the school system (among first-generation students) and gender as the two characteristics having the most impact on graduation[4].

[4] One must also mention a study funded by MELS, is currently being carried out by a research team consisting of Jacques Ledent, Marie Mc Andrew and Jake Murdoch. This project, which covers the 1999-2000 cohort, seeks to extend the already mentioned study on the Black communities to six groups based on origin (South Asia,

2.2 EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF NON-FRENCH SPEAKERS

2.2.1 Descriptive data presentation

2.2.1.1 Characteristics of the target and comparison groups and of subgroups

The cohort under study consisted of the students who, in 1999, attended *Secondaire 1* for the first time in a French sector school in the Montreal region. In particular, we were interested in the non-French speakers – that is, those who did not list French as their home language. They constituted our target group, which was made up of 4,750 students. The 9,210 remaining students, thus the French speakers, constituted our comparison group. As a result, the target group represented slightly more than a third (34.0%) of the cohort under study.

A close look at the language spoken at home by the members of the target group revealed that, aside from English (753 students or 15.9% of the target group), the most frequent languages spoken at home were, in decreasing order of importance, Spanish (718 students), Arabic (529), Creole (358), Chinese (294) and Vietnamese (182), which together represented under half (43.8%) of the target group. Thus, in the set of tables shown below, the data included relate not only to the target and comparison groups, but also to the five subgroups that correspond to the languages just listed[5]. Five other language subgroups, selected for various reasons[6], were also considered: Portuguese (119 students), Persian (97), Tagalog (96), Romanian (90) and Tamil (85). Their size in the neighbourhood of 100 was deemed sufficiently high to allow for meaningful comments about them[7] (see Table 4).

Eastern Asia, South-east Asia, Northern Africa and the Middle East, Central and South America, Eastern Europe), as well to update data regarding the Black communities.

[5] English was not retained in view of the fact that, even among the students who attend a school in the French sector, a substantial proportion of those who speak English at home belong to families long established in Canada. Indeed, among the 685 English speakers for whom the birthplace as well as the birthplaces of the parents were known, 183 or slightly more than a quarter (26.7%) belong to the "third generation or more" in the sense that they and their two parents were born in Canada.

[6] Although local interest was most important in selecting the Portuguese sub-group, potential comparison with the very same sub-groups in Toronto and/or Vancouver was the basis for the selection of the others.

[7] Together, these five additional sub-groups account for another 8.4% of the whole target group.

1 - Enrolment in public or private schools

In Montreal, a sizeable proportion of secondary schools in the French system are private schools and thus slightly under a third (31.4%) of all students in this study elected to enter *Secondaire 1* in a private school rather than in a public one. Because the graduation rate is notably higher in the private sector than in the public sector, the discussion of many of the variables examined in this section, to be meaningful, requires separating in some ways private schools from public schools.

Table 4
Language used at home: Enrolment in public or private schools, Montreal

Language used at home	Public		Private		Total
	N	%	N	%	N
Non-French Speakers					
All	3,693	77.7	1,057	22.3	4,750
Subgroups					
Spanish	658	91.6	60	8.4	718
Arabic	402	76.0	127	24.0	529
Creole	331	92.5	27	7.5	358
Chinese	241	82.0	53	18.0	294
Vietnamese	126	69.2	56	30.8	182
Portuguese	107	89.9	12	10.1	119
Persian	79	81.4	18	18.6	97
Tagalog	94	97.9	**	**	96
Romanian	64	71.1	26	28.9	90
Tamil	85	100.0	**	**	85
French Speakers	5,880	63.8	3,330	36.2	9,210

** Below 10 students.

In most instances, general and specific data for the public sector bears some resemblance, because only a minority of students in the target group and subgroups attended a private school. Thus, only 1 in 5 non-French speakers entered *Secondaire 1* in a private school versus 1 in 3 French speakers. Apart from the Tagalog and Tamil subgroups which had fewer than 10 students registered in that sector, attendance of private schools was below average for Creole, Spanish

and Portuguese speakers; about average for Chinese, Persian and Arabic speakers; and substantially higher than average for Romanian and Vietnamese speakers.

Therefore, after the table for the two sectors together, separate tables are shown for the public and private sectors for particular variables. There will not be a discussion on all three tables. Our discussion will proceed in three steps:

- First, we comment on the results for the two sectors together.
- Second, we contrast the target group[8] with the comparison group in the private sector.
- Third, we offer, separately for the target and comparison groups, a direct contrast between the public and private sectors.

2 - Socio-demographic characteristics

Birthplace

Unlike the comparison group in which 1 in 10 of students were born outside Canada[9], the target group has a small majority of such students: 6 in 10 (see Table 5 for the two sectors together). The proportion of students born outside Canada however, varies widely across language subgroups. Below average for Vietnamese and Portuguese speakers, the proportion is about average for Chinese and Spanish speakers, above average for Creole, Arabic and Persian speakers, and well above average (more than 90%) for members of the remaining three subgroups (Tagalog, Romanian and Tamil). Overall, as one would expect, the more recent the immigration flows associated with a language subgroup, the higher is the proportion of students born outside Canada.

[8] Additional comments specific to the language sub-groups will be mostly limited to those sub-groups large enough in size: the Arabic, Vietnamese and Chinese sub-groups with, respectively, 127, 56 and 53 students entering *Secondaire 1* in a private school.

[9] A fact that reflects the high proportion of francophones among recent immigrants to Quebec.

Table 5
Language used at home: Birthplace, Montreal

Language used at home	Born in Canada		Born outside Canada	
	N	%	N	%
Non-French Speakers				
All	1,858	39.1	2,892	60.9
Subgroups				
Spanish	250	34.8	468	65.2
Arabic	114	21.6	415	78.4
Creole	105	29.3	253	70.7
Chinese	127	43.2	167	56.8
Vietnamese	115	63.2	67	36.8
Portuguese	66	55.5	53	44.5
Persian	20	20.6	77	79.4
Tagalog	**	**	89	92.7
Romanian	**	**	86	95.6
Tamil	**	**	82	96.5
French Speakers	8,282	89.9	928	10.1

** Below 10 students.

Gender

Both the target group and the comparison group contain slightly more males than females (50.4% versus 49.6%) (see Table 6 for the two sectors lumped together). This is also the case in 7 out of the 10 language subgroups, especially the Arabic, Portuguese and Tagalog subgroups, in which the male proportion varies from 54.4% to 62.5%. The other three subgroups (Creole, Persian and Chinese) exhibit a small male deficit.

Table 6
Language used at home: Gender, Montreal

Language used at home	Male		Female	
	N	%	N	%
Non-French Speakers				
All	2,423	51.0	2,327	49.0
Subgroups				
Spanish	375	52.2	343	47.8
Arabic	288	54.4	241	45.6
Creole	170	47.5	188	52.5
Chinese	141	48.0	153	52.0
Vietnamese	95	52.2	87	47.8
Portuguese	66	55.5	53	44.5
Persian	46	47.4	51	52.6
Tagalog	60	62.5	36	37.5
Romanian	45	50.0	45	50.0
Tamil	44	51.8	41	48.2
French Speakers	4,643	50.4	4,567	49.6

Socio-economic status

All of the students in the cohort have been classified in quintiles on the basis of the median family income in their enumeration area (EA) of residence, which has been assigned to them. The quintile distribution in the target group differs sharply from that in the comparison group (see Table 7a for the two sectors lumped together). Whereas students in the comparison group are somewhat evenly distributed (only the proportion in the lowest quintile is substantially smaller), those in the target group are comparatively more present in the bottom two quintiles and, correlatively, less present in the top three quintiles. In other words, students in the target group tend to reside in comparatively less affluent enumeration areas than students in the comparison group, as exemplified by this simple observation: compared with French speakers, non-French speakers belong more often to the lowest quintile (30.3% versus 14.7 %) and less often to the highest quintile (14.0% versus 23.0%).

Table 7a
Language used at home: Median family income in EA of residence, Montreal

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-French Speakers										
All	1,432	30.3	1,112	23.5	797	16.9	722	15.3	664	14.0
Subgroups										
Spanish	242	33.8	205	28.7	150	21.0	78	10.9	40	5.6
Arabic	112	21.3	113	21.4	127	24.1	87	16.5	88	16.7
Creole	148	41.5	94	26.3	56	15.7	44	12.3	15	4.2
Chinese	90	31.1	68	23.5	47	16.3	39	13.5	45	15.6
Vietnamese	52	28.7	44	24.3	32	17.7	27	14.9	26	14.4
Portuguese	15	12.6	41	34.5	30	25.2	21	17.6	12	10.1
Persian	25	26.0	22	22.9	19	19.8	18	18.8	12	12.5
Tagalog	48	50.0	22	22.9	**	**	**	**	**	**
Romanian	22	24.4	19	21.1	18	20.0	16	17.8	15	16.7
Tamil	40	47.1	22	25.9	11	11.9	**	**	**	**
French Speakers	1,351	14.7	1,673	18.2	1,990	21.7	2,065	22.5	2,112	23.0

** Below 10 students.

The observation just made about the lesser affluence of the target group is especially striking for three of the language subgroups: the Creole, Tamil and Tagalog, whose lowest quintile proportions are, respectively, 41.5%, 47.1% and 50.0%. In the remaining language subgroups, the departure from the whole target group is minimal, with the exception of the Spanish subgroup in which there are comparatively lower proportions in the top two quintiles (highest and high) and comparatively higher proportions in the next two quintiles (medium and low) for a similar proportion in the lowest quintile.

Bypassing Table 7b on the public sector (for reasons already indicated) and moving directly to Table 7c on the private sector, unlike what was observed for the two sectors together and thus the public sector, the quintile distribution of the target group is very similar to that of the comparison group. Both groups show a high concentration of students in the top (highest) quintile and, correlatively, a low concentration in the bottom two (low and lowest) quintiles. For example, 35.6% of non-French speakers belong to the highest quintile versus 40.6% of French speakers; at

the same time, the proportions of non-French speakers who belong to the low and lowest quintiles are 13.3% and 10.0%, respectively, versus 10.5% and 6.0% for French speakers. Finally, a very similar quintile distribution is observed for language subgroups large enough in size: the Arabic, Vietnamese and Chinese subgroups.

Another way of looking at the same data is to contrast the two sectors (public and private) within the target group and within the comparison group. Thus, comparison of Table 7b with Table 7c strongly suggests, for the target group, the existence of a sharply different quintile distribution between the public and private sectors. As expected, the private distribution is indicative of greater affluence than the public distribution. Moreover, the private distribution (10.0% to 35.6% from the lowest to the highest quintiles) is the mirror image of the comparable public distribution (36.1% to 7.9%).

Table 7b
Language used at home: Median family income in EA of residence (public sector), Montreal

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-French Speakers										
All	1,327	36.1	972	26.4	597	16.2	489	13.3	290	7.9
Subgroups										
Spanish	234	35.7	196	29.9	132	20.2	68	10.4	25	3.8
Arabic	98	24.4	97	24.1	96	23.9	65	16.2	46	11.4
Creole	144	43.6	90	27.3	50	15.2	36	10.9	10	3.0
Chinese	79	33.5	61	25.8	36	15.3	31	13.1	29	12.3
Vietnamese	45	36.0	34	27.2	25	20.0	15	12.0	**	**
Portuguese	14	13.1	37	34.6	27	25.2	20	18.7	**	**
Persian	24	30.4	17	21.5	16	20.3	13	16.5	**	**
Tagalog	47	50.0	22	23.4	**	**	**	**	**	**
Romanian	18	28.1	16	25.0	15	23.4	10	15.6	**	**
Tamil	40	47.1	22	25.9	11	12.9	**	**	**	**
French Speakers	1,152	19.6	1,324	22.6	1,433	24.4	1,198	20.4	764	13.0

** Below 10 students.

Table 7c
Language used at home: Median family income in EA of residence (private sector), Montreal

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-French Speakers										
All	105	10.0	140	13.3	200	19.0	233	22.1	374	35.6
Subgroups										
Spanish	**	**	**	**	18	30.0	10	16.7	15	25.0
Arabic	14	11.2	16	12.8	31	24.8	22	17.6	42	33.6
Creole	**	**	**	**	**	**	**	**	**	**
Chinese	11	20.8	**	**	11	20.8	**	**	16	30.2
Vietnamese	**	**	10	17.9	**	**	12	21.4	20	35.7
Portuguese	**	**	**	**	**	**	**	**	**	**
Persian	**	**	**	**	**	**	**	**	**	**
Tagalog	**	**	**	**	**	**	**	**	**	**
Romanian	**	**	**	**	**	**	**	**	10	38.5
Tamil	**	**	**	**	**	**	**	**	**	**
French Speakers	199	6.0	349	10.5	557	16.8	867	26.1	1,348	40.6

** Below 10 students.

Because in Quebec private schools are largely funded by the provincial government, this finding may highlight that non-French speakers are not informed about the existence of the private sector. For recent immigrant, lower attendance may also be linked to the fact that entrance examinations are usually held early in the fall, e.g. almost a year before actual entry. Another possible explanation is that specific groups are still not able to afford to send their children to a private school.

Note that the above contrast between the two sectors is also pertinent to the comparison group, but it is not as sharp because, as noted earlier, the quintile distribution is more evenly distributed for the two sectors together and thus for the public sector than for the private sector.

3 - Schooling process variables

Age when entering high school

When contrasted with the students in the comparison group, those in the target group were more likely to enter secondary school one year later (see Table 8a for the two sectors together). Specifically, whereas only 1 in 5 French speakers entered *Secondaire 1* later than expected, 2 in 5 non-French speakers were late arrivals. Among those students who arrived late, non-French speakers were two years late more often than French speakers: about 1 in 4 versus 1 in 10. The students in both groups, however, rarely arrived earlier than the expected age: 3.5% among non-French speakers and 5.6% among French speakers.

Table 8a
Language used at home: Age when entering high school, Montreal

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	165	3.5	2,627	55.3	1,424	30.0	534	11.2
Subgroups								
Spanish	**	**	388	54.0	249	34.7	72	10.0
Arabic	44	8.3	298	56.3	147	27.8	40	7.6
Creole	**	**	131	36.6	157	43.9	69	19.3
Chinese	**	**	192	65.3	67	22.8	26	8.8
Vietnamese	**	**	134	73.6	37	20.3	**	**
Portuguese	**	**	56	47.1	53	44.5	10	8.4
Persian	**	**	56	57.7	26	26.8	14	14.4
Tagalog	**	**	33	34.4	38	39.6	25	26.0
Romanian	**	**	51	56.7	28	31.1	**	**
Tamil	**	**	26	30.6	36	42.4	23	27.1
French Speakers	515	5.6	6,850	74.4	1,721	18.7	124	1.3

** Below 10 students.

The pattern just outlined for the target group applies as well to most language subgroups. Notable exceptions are the Creole, Tagalog and Tamil subgroups in which about two out of three students arrive later than expected, and a substantial proportion of these is late by even two years

or more – 1 in 3 in the Creole subgroup and as high as 2 in 5 in the Tagalog and Tamil subgroups.

The differences just noted between the target and comparison groups hold true in the public sector (Table 8b) but not in the private sector (Table 8c). In the private sector, the pattern for the age of arrival is quite the same for non-French speakers as for French speakers: only 1 in 10 arrived later than expected, and, among those who arrived late, only 1 in 10 was late by two or more years. In addition, in the two groups a non-negligible proportion – 1 in 10 – of students arrived earlier than expected[10].

Table 8b
Language used at home: Age when entering high school (public sector), Montreal

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	52	1.4	1,793	48.6	1,323	35.8	525	14.2
Subgroups								
Spanish	**	**	343	52.1	238	36.2	71	10.8
Arabic	16	4.0	214	53.2	132	32.8	40	10.0
Creole	**	**	110	33.2	154	46.5	67	20.2
Chinese	**	**	153	63.5	58	24.1	26	10.8
Vietnamese	**	**	84	66.7	36	28.6	**	**
Portuguese	**	**	46	43.0	51	47.7	10	9.3
Persian	**	**	44	55.7	22	27.8	13	16.5
Tagalog	**	**	31	33.0	38	40.4	25	26.6
Romanian	**	**	36	56.3	21	32.8	**	**
Tamil	**	**	26	30.6	36	42.4	23	27.1
French Speakers	124	2.1	4,216	71.7	1,438	24.5	102	1.7

** Below 10 students.

[10] At first glance, the same pattern applies to the more numerous language sub-groups.

Table 8c
Language used at home: Age when entering high school (private sector), Montreal

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	113	10.7	834	78.9	101	9.6	**	**
Subgroups								
Spanish	**	**	45	75.0	11	18.3	**	**
Arabic	28	22.0	84	66.1	15	11.8	**	**
Creole	**	**	21	77.8	**	**	**	**
Chinese	**	**	39	73.6	**	**	**	**
Vietnamese	**	**	50	89.3	**	**	**	**
Portuguese	**	**	10	83.3	**	**	**	**
Persian	**	**	12	66.7	**	**	**	**
Tagalog	**	**	**	**	**	**	**	**
Romanian	**	**	15	57.7	**	**	**	**
Tamil	**	**	**	**	**	**	**	**
French Speakers	391	11.7	2,634	79.1	283	8.5	22	0.7

** Below 10 students.

Looking further at Tables 8b and 8c, contrasting each of the target and comparison groups directly between the two sectors, reveals that the pattern for age of arrival is similar in the two sectors for the comparison group. However, it is quite different for the target group. Indeed, among non-French speakers enrolled in the private sector, only 1 in 10 arrived later than expected versus 1 in 2 in the public sector, and, moreover, as many as 1 in 10 arrived earlier than expected versus 1 in 100 in the public sector.

Level of entry into the school system

The large majority of the cohort members pursued some of their primary schooling in the Montreal region, although somewhat fewer in the target group (8 in 10) than in the comparison group (9 in 10) (see Table 9 for the two sectors lumped together). Among those who were not already attending primary school in Montreal (newcomers), non-French speakers were essentially born outside Canada and thus can be thought of as immigrants whose families had just settled in Montreal (9 in 10). By contrast, among French speakers most (9 in 10) newcomers

to a Montreal school were born in Canada. Most likely, they did part, if not all of their primary schooling within Quebec but outside Montreal or, for some at least, in another Canadian province before moving to Montreal at some point prior to entering *Secondaire 1*.

Table 9
Language used at home: Level of entry into the school system, Montreal

Language used at home	In primary in Montreal		Newcomers born in Canada		Newcomers born outside Canada	
	N	%	N	%	N	%
Non-French Speakers						
All	3,832	80.7	86	1.8	832	17.5
Subgroups						
Spanish	615	85.7	**	**	97	13.5
Arabic	437	82.6	12	2.3	80	15.1
Creole	267	74.6	**	**	87	24.3
Chinese	235	79.9	**	**	57	19.4
Vietnamese	173	95.1	**	**	**	**
Portuguese	109	91.6	**	**	10	8.4
Persian	69	71.1	**	**	28	28.9
Tagalog	64	66.7	**	**	32	33.3
Romanian	66	73.3	**	**	22	24.4
Tamil	47	55.3	**	**	38	44.7
French Speakers	8,219	89.2	864	9.4	127	1.4

** Below 10 students.

The proportion of newcomers to a Montreal school who were born outside Canada varies across language subgroups more or less in relation to how recent the immigration flows associated with the various language subgroups are. Thus, the proportion of newcomers to a Montreal school who were born outside Canada is about average for the Spanish, Arabic and Chinese subgroups. And if it is low for subgroups such as the Vietnamese and Portuguese, it is high for the Creole, Romanian and Persian subgroups and especially high for the Tagalog and Tamil subgroups.

Frequency of school changes

According to the figures shown in Table 10 for the two sectors together, a majority (2 in 3 non-French and French speakers) remain in the same school during their secondary schooling, here

limited to the first five years after entering *Secondaire 1*. The same observation applies broadly to all language subgroups, although some subgroups have a somewhat higher proportion of students who do not change schools such as the Vietnamese, Tamil, Persian and Tagalog subgroups.

Table 10
Language used at home: Frequency of school changes (within 5 years of entering *Secondaire 1*), Montreal

Language used at home	No school change		At least one school change	
	N	%	N	%
Non-French Speakers				
All	3,148	66.3	1,602	33.7
Subgroups				
Spanish	451	62.8	267	37.2
Arabic	320	60.5	209	39.5
Creole	215	60.1	143	39.9
Chinese	199	67.7	95	32.3
Vietnamese	134	73.6	48	26.4
Portuguese	77	64.7	42	35.3
Persian	77	79.4	20	20.6
Tagalog	79	82.3	17	17.7
Romanian	53	58.9	37	41.1
Tamil	63	74.1	22	25.9
French Speakers	6,103	66.3	3,107	33.7

Soutien linguistique during secondary schooling

In Quebec, the provincial government provides the schools in the French system with additional funding so that they can offer special services, or *soutien linguistique,* designed to help non-French speakers learn the French language. Services are usually offered for two years, when the student is registered for the first time in a Quebec school, e.g. mostly in primary schools. Nevertheless, one in five non-French speakers in our cohort benefited from *soutien linguistique* at some point during his or her secondary schooling (see Table 11 for the two sectors lumped together). But this average proportion conceals a wide variety of situations across language subgroups. The Vietnamese and Portuguese subgroups contain a small proportion of students

who receive *soutien linguistique*, the Spanish and Arabic subgroups an average proportion, the Chinese, Creole, Romanian and Persian subgroups an above average proportion and, finally, the Tagalog and especially the Tamil subgroups a significatively higher proportion.

Table 11
Language used at home: *Soutien linguistique* during secondary schooling, Montreal

Language used at home	No		Yes	
	N	%	N	%
Non-French speakers				
All	3,822	80.5	928	19.5
Subgroups				
Spanish	613	85.4	105	14.6
Arabic	452	85.4	77	14.6
Creole	266	74.3	92	25.7
Chinese	221	75.2	73	24.8
Vietnamese	176	96.7	**	**
Portuguese	112	94.1	**	**
Persian	65	67.0	32	33.0
Tagalog	59	61.5	37	38.5
Romanian	63	70.0	27	30.0
Tamil	40	47.1	45	52.9
French Speakers	9,199	99.9	11	0.1

** Below 10 students.

Such a categorization is broadly similar to the one presented earlier for the proportion of students born outside Canada. This finding tends to suggest that receiving *soutien linguistique* in high schools is closely linked to the time of settlement in Montreal of the various language subgroups.

4 - School level characteristics

Concentration of non-French speakers

Clearly, members of the target group attended schools with a different composition from those attended by members of the comparison group (see Table 12a for the two sectors together). Whereas only a small proportion of French speakers (1 in 20) were enrolled in school with a

majority of non-French speakers, a substantial proportion of non-French speakers (2 in 5) attended a school in which their group outnumbers French speakers[11].

Table 12a
Language used at home: Concentration of non-French speakers in school attended, Montreal

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	939	19.8	1924	40.5	912	19.2	975	20.5
Subgroups								
Spanish	160	22.3	342	47.6	150	20.9	66	9.2
Arabic	97	18.3	240	45.4	123	23.3	69	13.0
Creole	117	32.7	153	42.7	80	22.3	**	**
Chinese	60	20.4	148	50.3	38	12.9	48	16.3
Vietnamese	60	33.0	76	41.8	28	15.4	18	9.9
Portuguese	16	13.4	74	62.2	25	21.0	**	**
Persian	**	**	45	46.4	10	10.3	34	35.1
Tagalog	**	**	22	22.9	**	**	67	69.8
Romanian	18	20.0	41	45.6	9	10.0	22	24.4
Tamil	**	**	17	20.0	28	32.9	34	40.0
French Speakers	5,745	62.4	2,929	31.8	406	4.4	130	1.4

** Below 10 students.

Moreover, when non-French speakers were in the majority, they were often (1 instance in 2) a large majority because they represented at least 75% of the student body. This overall picture is more or less consistent across the various language subgroups. At one extreme, the Creole, Portuguese, and Vietnamese subgroups had a comparatively low proportion (1 in 4) of members who attended a school with a majority of non-French speakers. At the other extreme, the Tamil and Tagalog subgroups had a relatively high proportion (3 in 4) of members who attended a school with a majority (and in fact a high percentage) of non-French speakers.

[11] Caution must be exercised in interpreting Table 12a because members of some language sub-groups, in particular the Creole and Arabic, may declare themselves as French speakers rather than Creole or Arabic speakers so that in practice the proportion of non-French speakers in the school they attend is underestimated.

In particular, 4 in 10 Tamil speakers as well as 7 in 10 Tagalog speakers attended a school with a concentration of non-French speakers that surpasses 75%. In between are the Arabic, Persian and Romanian subgroups, whereas the Creole subgroup is on its own in the sense that it has a comparatively high proportion of students in schools with a low proportion of non-French speakers and a comparatively low proportion in schools with a high proportion of non-French speakers.

Bypassing Table 12b for the public sector and turning to Table 12c for the private sector, it appears that 1 in 4 non-French speakers versus only about 1 in 50 of French speakers were enrolled in a school in which non-French speakers constituted the majority. But when non-French speakers were the majority, it was often a large majority because a third of the time they were enrolled in a school with a proportion of non-French speakers surpassing 75%. Such an observation, however, does not apply to the various language subgroups considered here (except the Arabic subgroup)[12].

Table 12b
Language used at home: Concentration of non-French speakers in school attended (public sector), Montreal

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	542	14.7	1,521	41.2	823	22.3	807	21.9
Subgroups								
Spanish	135	20.5	308	46.8	149	22.6	66	10.0
Arabic	66	16.4	188	46.8	102	25.4	46	11.4
Creole	96	29.0	148	44.7	79	23.9	**	**
Chinese	33	13.7	123	51.0	37	15.4	48	19.9
Vietnamese	18	14.3	63	50.0	28	22.2	17	13.5
Portuguese	11	10.3	67	62.6	25	23.4	**	**
Persian	**	**	29	36.7	10	12.7	34	43.0
Tagalog	**	**	20	21.3	**	**	67	71.3
Romanian	**	**	24	37.5	**	**	22	34.4
Tamil	**	**	17	20.0	28	32.9	34	40.0
French Speakers	3,170	53.9	2,241	38.1	346	5.9	123	2.1

[12] This apparent contradiction probably stems from the fact that when English speakers (an important proportion of the target group) attend French schools at the high school level, they often do so in private schools where they are in the majority (Mc Andrew & Eid, 2003).

** Below 10 students.

Table 12c
Language used at home: Concentration of non-French speakers in school attended (private sector), Montreal

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-French Speakers								
All	397	37.6	403	38.1	89	8.4	168	15.9
Subgroups								
Spanish	25	41.7	34	56.7	**	**	**	**
Arabic	31	24.4	52	40.9	21	16.5	23	18.1
Creole	21	77.8	**	**	**	**	**	**
Chinese	27	50.9	25	47.2	**	**	**	**
Vietnamese	42	75.0	13	23.2	**	**	**	**
Portuguese	**	**	**	**	**	**	**	**
Persian	**	**	16	88.9	**	**	**	**
Tagalog	**	**	**	**	**	**	**	**
Romanian	**	**	17	65.4	**	**	**	**
Tamil	**	**	**	**	**	**	**	**
French Speakers	2,575	77.3	688	20.7	60	1.8	**	**

** Below 10 students.

Finally, a comparison of Tables 12b and 12c confirms that students in the private sector attended schools with a lesser concentration of non-French speakers than in the public sector. This result is true for the comparison group in which the proportion of students who attended schools with more than 25% of non-French speakers was 1 in 4 in the private sector versus 1 in 2 in the public sector. But it is even more prevalent for the target group in which 1 in 4 in the private sector versus 2 in 5 in the public sector were enrolled in a school with a majority of non-French speakers. However, when non-French speakers constituted the majority, it was more often a large majority (more than 75%) than a small majority (50-75%) in the private sector, whereas the two categories had a similar importance in the public sector[13].

[13] A related issue is the exposition of the students in the various language sub-groups to members of their own sub-group. But such an issue is fraught with difficulty because of the relatively small size of the various language sub-groups concerned. Nevertheless, supplementary analysis, not reproduced here, reveals that non-French speakers rarely attend a school in which their own language group represents a substantial part of the student body. For most (6 out of the 10) of the language sub-groups considered here, no student is exposed to a student body in which the proportion of students belonging to his or her own sub-group is more than 10% (5% in the case of the Persian and Tamil sub-groups). Nevertheless, two sub-groups have a substantial proportion of students who are exposed to a student body with a moderate (10 - 15%) representation of their own sub-group

Enrolment in a school identified as socio-economically challenged

In Quebec, in order to stimulate the academic performance of socio-economically challenged students, the provincial government provides those public schools that contain many such students with some additional funding under a program named *Agir autrement*. In practice, such schools are identified as all those that fall in the lowest (8-10) deciles in the ranking of all provincial schools according to the decreasing values of their index of socio-economic status[14].

When the students were initially enrolled in a public school, in approximately 3 out of 5 cases the school attended was identified as socio-economically challenged with little difference between the target and comparison groups: 61.3% for members of the target group versus 58.1% for members of the comparison group (Table 13). But the 61.3% average for the target group conceals a wide variety of situations across language groups. The proportion in this regard is comparatively low for the Persian, Tagalog and Romanian subgroups and, by contrast, comparatively high for the Tamil, Vietnamese, Spanish, Portuguese and Creole subgroups. In between are the Chinese and Arabic subgroups with intermediate proportions.

(39% for the Spanish sub-group and 54% for the Tagalog sub-group), whereas two others have a substantial proportion of students exposed to a student body with a somewhat higher (15-20%) representation of their own sub-group (1 in 10 for the Creole sub-group and 1 in 4 for the Arabic sub-group, which also has some individuals in the more than 20% category).

[14] The index attributed to each school is a school average of an index that reflects the proportion of mothers who are undereducated (two-thirds) and the proportion of inactive (not in the labor force) parents (one-third). Because direct information on these two variables is not available for individual students, each student, instead, is given the values that these two variables have in the enumeration area in which his or her family resides.

Table 13
Language used at home: Enrolment in a school identified as socio-economically challenged (public sector), Montreal

Language used at home	No*		Yes**	
	N	%	N	%
Non-French Speakers				
All	1,389	38.7	2,200	61.3
Subgroups				
Spanish	182	27.7	476	72.3
Arabic	176	43.8	226	56.2
Creole	72	21.8	258	78.2
Chinese	107	44.4	134	55.6
Vietnamese	37	29.4	89	70.6
Portuguese	26	24.3	81	75.7
Persian	55	69.6	24	30.4
Tagalog	63	67.0	31	33.0
Romanian	39	60.9	25	39.1
Tamil	28	32.9	57	67.1
French Speakers	2,458	41.9	3,410	58.1

* Deciles 1-7 of index of Québec *Agir autrement* indicators.
** Deciles 8-10 of index of Québec *Agir autrement* indicators.

2.2.1.2 Comparative educational pathways and academic performance

1 - Graduation rates

One way of looking at this question is to examine the fate of the cohort under study 7 years after entering *Secondaire 1* (see Table 14a for the public and private sectors lumped together).

Table 14a
Language used at home: Graduation rates and educational pathways, Montreal

Language used at home	Graduated in Montreal						Still in the system	Graduated in another region		Absent
	On time		1 year after expected		2 years after expected					
	N	%	N	%	N	%	N	N	%	N
Non-French Speakers										
All	2,162	45.5	464	9.8	200	4.2	167	136	2.9	1,621
Subgroups										
Spanish	252	35.1	89	12.4	29	4.0	46	12	1.7	290
Arabic	280	52.9	52	9.8	20	3.8	19	22	4.2	136
Creole	79	22.1	40	11.2	24	6.7	33	**	**	180
Chinese	196	66.7	27	9.2	**	**	**	**	**	51
Vietnamese	130	71.4	10	5.5	10	5.5	**	**	**	24
Portuguese	40	33.6	17	14.3	**	**	**	**	**	52
Persian	46	47.4	10	10,3	**	**	**	**	**	31
Tagalog	30	31.3	17	17,7	**	**	**	**	**	40
Romanian	60	66.7	**	**	**	**	**	10	11.1	14
Tamil	28	32.9	11	12.9	**	**	**	**	**	39
French Speakers	4,804	52.2	612	6.6	254	2.8	268	433	4.7	2,839

** Below 10 students.

First, let us focus on those students who graduated in the jurisdiction (Montreal) where they started. Slightly more than the majority of French speakers graduated in Montreal within the normal 5 years of entering *Secondaire 1*, whereas slightly less than a majority of non-French speakers did so. Overall this average for the target group conceals some wide variations across language subgroups. Indeed, the proportion graduating on time in Montreal is, at one extreme, comparatively low for the Tagalog, Tamil, Spanish and Portuguese subgroups and especially the Creole subgroup while, at the other extreme, it surpasses 65% for the Romanian and Chinese subgroups and even 70% for the Vietnamese subgroup. This leaves two subgroups, the Persian and Arabic subgroups, which, in between these two extremes, had about an average proportion graduating. Interestingly enough, pushing the normal 5-year time horizon by one year (to 6 years) increases the proportion graduating, somewhat more for non-French speakers than for French speakers. Moreover, adding another year to the time horizon, now 7 years, increases further the proportion graduating, again more for non-French speakers than for French speakers.

In other words, after 7 years the proportion of those graduating in Montreal in the target group comes close to that of the comparison group (59.5% versus 61.6%): see Table 14b.

Table 14b
Language used at home: Cumulative graduation rates, Montreal

Language used at home	Proportion graduating in Montreal		Total graduation rate
	On time	2 years after expected	
Non-French Speakers			
All	45.5	59.5	62.4
Subgroups			
Spanish	35.1	51.5	53.2
Arabic	52.9	66.5	70.7
Creole	22.1	39.9	40.5
Chinese	66.7	77.6	80.6
Vietnamese	71.4	82.4	84.1
Portuguese	33.6	52.1	52.9
Persian	47.4	64.9	66.0
Tagalog	31.3	55.2	57.3
Romanian	66.7	73.3	84.4
Tamil	32.9	50.6	50.6
French Speakers	52.2	61.6	66.3

** Below 10 students.

Altogether, it leads to a 14.0% increase for non-French speakers, thus reducing the graduation shortfall of non-French speakers from 6.7% to 2.1% For a majority of the language subgroups (6 out of 10), the gain in graduation rates was in the same range (13.6% to 18.5%).

However, as one could expect, it takes on a smaller value for the 3 subgroups with a high proportion graduating on time – that is, the Chinese and Vietnamese subgroups and especially the Romanian subgroup – and, on the contrary, it takes on a much higher value for the Tagalog subgroup. As a consequence, consideration of a 7-year rather than a 5-year time horizon only slightly modifies the relative positions of the language subgroups vis-à-vis the proportion graduating on time. It simply reduces the distance between the top subgroups (Chinese, Romanian and Chinese) and the other subgroups, whereas it allows the Tagalog subgroup to move up within the bottom subgroups.

Thus far, the focus has been on graduation rates in the Montreal region. But there are students who in the course of their schooling transfer to and graduate in another region in Quebec – actually a much lower proportion of non-French speakers than French speakers.

Accounting for graduation rates in regions other than Montreal somewhat increases the proportion graduating. Even though, among those transferring out of Montreal, non-French speakers tended to graduate more than French speakers, the increase in the proportion graduating was less for the former (2.9%) than for the latter (4.7%) for the simple reason that non-French speakers are less likely to move to another region than French speakers. Similar information at the level of the language subgroups, however, is difficult to evaluate, because the numbers involved are small. Nevertheless, in the case of the Romanian subgroup, graduation rates outside of Montreal add 11.1% to the proportion graduating.

Including graduation rates outside the region of Montreal influences the graduation rate (now denoted as total graduation rate) to reach 62.4% for non-French speakers versus 66.3% for French speakers, thus causing the 2.1% differential observed earlier on the basis of the sole proportion graduating in Montreal to increase to 3.9%.

Moreover, accounting for graduation rates outside of Montreal had some impact on the relative positions of the various language subgroups. In particular, the Romanian subgroup is now slightly ahead of the Vietnamese subgroup at the top of the ranking of the 10 subgroups. Observation of such ranking suggests regrouping the 10 language subgroups into four orderly categories:

- Top category: Romanian, Vietnamese and Chinese subgroups;
- Medium category: Arabic and Persian subgroups;
- Low category: Tagalog, Spanish, Portuguese and Tamil subgroups;
- Lowest category: Creole subgroup.

2 - Type of high school of diploma

Table 15
Language used at home: Type of high school diploma, Montreal

Language used at home	DES youth sector	DES adult sector	DEP professional
Non-French Speakers			
All	91.2	8.2	0.6
Subgroups			
Spanish	92.1	7.3	0.5
Arabic	93.9	5.6	0.5
Creole	86.9	13.1	0.0
Chinese	95.8	3.8	0.4
Vietnamese	96.7	2.6	0.7
Portuguese	85.7	9.5	4.8
Persian	89.1	10.9	0.0
Tagalog	54.5	45.5	0.0
Romanian	100.0	0.0	0.0
Tamil	76.7	23.3	0.0
French Speakers	94.5	4.5	1.0

As shown in Table 15, if French speakers rarely obtained their secondary diploma in professional education, this is even truer even of non-French speakers: 0.6 % versus 1%. However, among the vast majority of those who graduated in general education, almost twice as many non-French speakers as French speakers got their diploma in the adult sector. The reason is that whereas the proportion who graduated in the adult general education remained low for many of the language subgroups, it was particularly high for some subgroups: the Creole and, more significantly, the Tamil and Tagalog[15].

3 - Estimation of outmigration and drop-out rates

Table 14a reveals that, among the students who did not graduate in Montreal or elsewhere in Quebec by year 7, some can still be found in the system – 3.5% in the target group but a much higher proportion in the case of the Spanish and Creole subgroups. The majority however, are absent from the system, but are not necessarily drop-outs. For one thing, after turning 16 years of age, some of them may have moved to adult education, but our database, which is limited to attendance of a school in youth education, does not allow us to document this.

[15] We will provide an explanation for this observation later on when we discuss the participation of non-French speakers in the language exam administered in *Secondaire 5* by the Ministry.

Second, others may have moved out of Quebec, while still in youth education. Although the information available does not enable us to measure the proportion of students who did move out of Quebec, an attempt was made to evaluate such a proportion on the assumption that students who do not appear at any time in the system after their 14th birthday have left the province. The results of such an attempt are displayed in Table 16 from which it appears that the proportion of non-French speakers who left the province before their 15th birthday was about double of the corresponding proportion for French speakers (5.9% versus 2.8%). Such a proportion, however, varies widely across language subgroups, taking on higher values for Arabic, Persian and Tamil speakers.

Accounting for possible graduation rates in year 8 (2007) of students who were either present or absent in the system in year 7 makes it possible to calculate for any group or subgroup, an absence rate, shown in the last column of Table 16, which may be seen as an upper estimate of the drop-out rate. This information suggests some interesting results. First, the "drop-out" rate of non-French speakers was only marginally higher than that of French speakers (27.3% versus 26.9%). Second, graduation propensity rates of the Arabic, Persian and Tamil subgroups was actually better than suggested by the sole observation of the 7-year graduation rates.

Table 16
Language used at home: Estimation of outmigration and drop-out rates, Montreal

Language used at home	Graduated (%)		Outmigrated before reaching 15 years of age (%)	Other according to status in year 7	
	Within 7 years	In year 8		Present (%)	Absent (%)
Non-French Speakers					
All	62.4	1.3	5.9	3.1	27.3
Subgroups					
Spanish	53.2	1.9	4.3	5.6	35.0
Arabic	70.7	0.8	7.0	3.6	18.0
Creole	40.5	2.2	3.9	8.1	45.3
Chinese	80.6	0.7	3.7	1.7	13.3
Vietnamese	84.1	0.5	2.7	2.2	10.4
Portuguese	52.9	3.4	2.5	1.7	39.5
Persian	66.0	0.0	10.3	2.1	21.6
Tagalog	57.3	0.0	2.1	1.0	39.6
Romanian	84.4	0.0	4.4	0.0	11.1
Tamil	50.6	0.0	10.6	3.5	35.3
French Speakers	66.3	1.5	2.8	2.6	26.9

4 - Graduation by sector (public vs. private)

Research indicates that students in the public sector are less likely to graduate on time than those in the private sector. Indeed, within five years of entering *Secondaire 1*, the proportion of French speakers who graduated reached 44.7% in the public sector and 74.2% in the private sector (Table 17).

Table 17
Language used at home: Graduation by sector (public vs. private), Montreal

Language used at home	After 5 years		After 6 years		After 7 years	
	Public (%)	Private (%)	Public (%)	Private (%)	Public (%)	Private (%)
Non-French Speakers						
All	39.1	77.1	51.0	82.7	56.0	84.7
Subgroups						
Spanish	33.3	66.7	46.8	73.3	50.9	78.3
Arabic	51.5	70.1	63.2	78.0	67.7	80.3
Creole	19.9	51.9	31.1	63.0	37.8	74.1
Chinese	64.3	90.6	75.5	92.5	78.0	92.5
Vietnamese	62.7	94.6	71.4	94.6	77.8	98.2
Portuguese	29.9	66.7	44.9	83.3	49.5	83.3
Persian	39.2	83.3	53.2	83.3	60.8	88.9
Tagalog	30.9	**	50.0	**	56.4	**
Romanian	76.6	76.9	85.9	80.8	85.9	80.8
Tamil	32.9	**	45.9	**	50.6	**
French Speakers	44.7	74.2	53.7	79.6	57.6	81.5

** Below 10 observations.

The corresponding proportions for non-French speakers were roughly similar, although 5 points lower in the public sector and 3 points higher in the private sector. Despite the magnitude in the figures, these differences are not trivial. It should be noted and stressed that, in comparison to French speakers, non-French speakers were less likely to graduate in the public sector but more so in the private sector!

Additional years of schooling enable many students who have not obtained their diploma on time to do so, thus causing the graduation rates to rise with the time considered. Given the much lower values of the rates of those who graduated on time observed in the public than the private sectors, the "catch up" effect is more substantial in the former than in the latter. Indeed, in the public sector, two extra years of schooling caused the graduation rate to increase by 16.9% for non-French speakers and 12.9% for French so that the shortfall of the target group vis-à-vis the comparison group dropped to 1.6%. By contrast, in the private sector, two additional years result in similar increases of 7.6% for non-French speakers and 7.3% for French speakers, thus barely affecting the advantage of the target group over the comparison group. In other words, the shortfall of the target group in the public sector and its advantage in the private sector remain if the time horizon is extended from the normal 5 years to 7 years.

Finally, turning to an assessment of the graduation rates at the level of the language subgroups, this variable – as was the case for most of the variables previously examined – takes on, in the public sector, values that resemble the corresponding values in the public and the private sectors lumped together. Nevertheless, it must be observed that here the graduation rates were somewhat lower for some groups, in particular the Chinese and especially Vietnamese subgroups. Such is the case because these two subgroups that have around 50 students enrolled in the private sector have an outstanding graduation rate in this sector. Finally, it is exceptional performance in the private sector that allows the Vietnamese subgroup which lagged behind the Romanian subgroup by 8 percentage points in the public sector to come close to it in the two sectors together.

5 - Participation and performance in selected topics

French

Passing a course in the language of instruction is mandatory for graduating and thus one would expect the students enrolled in a French school to have a mark in French in their last year (*Secondaire 5*)[16]. Moreover, because the proportion of students reaching the terminal year that do not graduate is typically small, one would expect the rate of participation in French to be, for any group or subgroup, slightly higher than the graduation rate. If such an expectation was confirmed

[16] Half of this mark is based on results at the Quebec wide ministry exams, while the other half is an average of school boards results. Marks in Math and Science are also based on a similar formula.

for the comparison group (with a participation rate of 69.8% versus a graduation rate of 66.3%), this was not the case for the target group. Non-French speakers had a rate of participation in French (61.6%) that was lower than their graduation rate (62.4%) (Table 18). A possible explanation for this unexpected result may be that some of the English speakers who constitute a substantial proportion of non-French speakers – included in the target group but not considered as a separate language subgroup – may, at one point or another, have switched from the French sector to the English sector[17] and thus have a mark in English rather than French.

Table 18
Language used at home: Participation and performance in French, Sec. 5, Montreal

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	2,926	61.6	71.4
Subgroups			
Spanish	442	61.6	68.3
Arabic	389	73.5	72.1
Creole	174	48.6	67.2
Chinese	236	80.3	73.3
Vietnamese	157	86.3	75.5
Portuguese	68	57.1	68.9
Persian	62	63.9	71.7
Tagalog	40	41.7	65.0
Romanian	75	83.3	78.9
Tamil	37	43.5	69.3
French Speakers	6,428	69.8	74.3

Now, turning to the various language subgroups, the results observed are mixed in that some of the language subgroups displayed the same behaviour as the comparison group while the others displayed one akin to that of the whole target group.

On the one hand, there are five subgroups, generally viewed are francophiles, for which the rate of participation in French was higher than the graduation rate: Creole, Portuguese, Spanish, Arabic and Vietnamese. Most likely, the difference between the two rates which reflects the failure of the group members reaching *Secondaire 5* to obtain their diploma increased with the graduation rate. Then, it could be concluded from the above figures that, whereas few

[17] Bill 101 allows them to do so if at least one of their parents was educated in English in Canada.

Vietnamese speakers that reached *Secondaire 5* did not graduate, there is a sizeable proportion of Portuguese, Spanish and especially Creole speakers that did not graduate (about 1 in 4 among Creoles).

On the other hand, the other five subgroups exhibited the same pattern as the entire target group with a participation rate that was lower than the graduation rate. They include the Chinese and Romanian subgroups for which participation in French was slightly less than graduation, but also the Persian, Tamil and Tagalog subgroups, which exhibited a difference between graduation and participation in French that was equal, respectively, to 2, 7 and 15 percentage points.

Fortunately, coupling this observation with an earlier observation relating to the sector of diploma enables us to explain this unexpected result. As mentioned in Table 15 a comparatively high proportion of students in the three subgroups obtained their degree in general education, however they did so in the adult rather than in the youth sector. Thus, it is likely that when some non-French speakers reach 16 years of age, they will quit youth education and thus the French sector to move to adult education where Bill 101 does not apply so that they pursue their schooling in English as they move toward graduation[18].

Finally, regarding average scores in French, non-French speakers do not succeed as well as French speakers: 71.4 versus 74.3. Moreover the ranking of the various language subgroups according to average score resembles their ranking according to the graduation rate, so that the 4-category classification presented earlier with respect to graduation is the same here. Nevertheless, the Tagalog subgroup had, by far, the worst average score, whereas the same subgroup was at the top of the intermediate category of graduation rates. Again, the Romanian subgroup rated first, well ahead of the Vietnamese subgroup. Moreover, the difference in average score between the two groups was as high as the difference between the Vietnamese subgroup and the Persian subgroup (again the less performing subgroup of the intermediate category) as well as the difference between the Persian subgroup and the Creole subgroup (here the penultimate subgroup of the bottom category).

[18] Another explanation that perhaps is better suited for some sub-groups like the Chinese lies in a switch from a public school to a private school not subsidized by the provincial government.

Math

For the cohort under study, passing a mathematics course in *Secondaire 5* was not mandatory for graduating[19]. Nevertheless, most schools mandated that their students take a mathematics course, and thus, as in the case of French, one would expect the participation rate in such a topic to be close to the graduation rate, either higher if the proportion of students who manage to avoid taking this topic is marginal, or (slightly) smaller if this proportion, although small, is not trivial.

Before going any further, it is important to recall that alternative mathematics courses are available at level 5:

- A low-selectivity course (Math 514, Sec. 5) is generally taken by students who do not intend to go to a CEGEP or, if they intend to do so, will not enrol in a university-bound programme.
- A medium-selectivity course (Math 526, Sec. 5) is minimally taken by students who intend to enrol in a social sciences programme in CEGEP.
- A high-selectivity course (Math 536, Sec. 5) is required for entering a natural or health sciences programme in CEGEP.

For various reasons, however, some students take the Ministry exam for more than one course and thus end up with a mark for two or even three of the mathematics courses. Consequently, the decision was made to keep only the mark corresponding to the most selective course for each student. In other words, a mark for the medium-selectivity course is a mark attributed to a student who may also have one in the low-selectivity course (disregarded here as just indicated) but does not have one in the high-selectivity course.

The raw results regarding participation and performance in these different courses appear in Table 19. But, as it turns out, a direct discussion of the information in this table is not as informative as a discussion of the information contained in a table obtained by rearranging the raw results in Table 19.

[19] This is, however, the case for the most recent cohorts.

Table 19
Language used at home: Participation and performance in Math (raw results), Montreal

Math 514, Sec. 5 (low selectivity)

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	911	19.2	64.9
Subgroups			
Spanish	191	26.6	63.4
Arabic	95	18.0	65.7
Creole	95	26.5	63.0
Chinese	26	8.8	65.8
Vietnamese	23	12.6	67.7
Portuguese	33	27.7	64.5
Persian	17	17.5	65.2
Tagalog	10	10.4	67.0
Romanian	**	**	69.1
Tamil	15	17.6	61.0
French Speakers	1,733	18.8	65.7

Math 526, Sec. 5 (medium selectivity)

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	371	7.8	63.3
Subgroups			
Spanish	53	7.4	60.6
Arabic	47	8.9	60.7
Creole	17	4.7	59.3
Chinese	18	6.1	65.8
Vietnamese	16	8.8	63.8
Portuguese	**	**	59.6
Persian	11	11.3	69.2
Tagalog	14	14.6	64.6
Romanian	12	13.3	61.1
Tamil	**	**	58.7
French Speakers	1,010	11.0	64.6

** Below 10 students.

Math 536, Sec. 5 (high selectivity)

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	1,540	32.4	74.2
Subgroups			
Spanish	131	18.2	68.0
Arabic	221	41.8	74.2
Creole	23	6.4	64.6
Chinese	198	67.3	78.7
Vietnamese	115	63.2	75.0
Portuguese	20	16.8	67.7
Persian	31	32.0	72.8
Tagalog	13	13.5	71.8
Romanian	54	60.0	77.3
Tamil	20	23.5	71.0
French Speakers	2,939	31.9	73.5

Indeed, given the existence of three alternative courses in mathematics, the best way to look at participation in this topic is to proceed in two steps:

- First, look at participation in any mathematics course.
- Second, examine selection of a particular course among the three available.

Overall, 3 in 5 students in the cohort under study had a mark in mathematics, but this proportion was slightly higher in the comparison group (61.7%) than in the target group (59.4%) (Table 20). These two proportions, it turns out, were smaller by a few percentage points than the comparable graduation rates. Even though, of the students who reach *Secondaire 5*, only a small proportion did not graduate, the gap just uncovered between graduation and participation in mathematics stresses the fact that many students do not take a mathematics course in *Secondaire 5*.

Table 20
Language used at home: Participation in low, medium and high selectivity in Math courses, Montreal

Language used at home	Total participation		Decomposition by selectivity		
			Low	Medium	High
	N	%	%	%	%
Non-French Speakers					
All	2,822	59.4	32.3	13.1	54.6
Subgroups					
Spanish	375	52.2	50.9	14.1	34.9
Arabic	363	68.6	26.2	12.9	60.9
Creole	135	37.7	70.4	12.6	17.0
Chinese	242	82.3	10.7	7.4	81.8
Vietnamese	154	84.6	14.9	10.4	74.7
Portuguese	60	50.4	55.0	11.7	33.3
Persian	59	60.8	28.8	18.6	52.5
Tagalog	37	38.5	27.0	37.8	35.1
Romanian	74	82.2	10.8	16.2	73.0
Tamil	38	44.7	39.5	7.9	52.6
French Speakers	5,682	61.7	30.5	17.8	51.7

A close look at the results for the various language subgroups suggests that the 4-category typology set forth for graduation is also in force here, because in general the rate of participation in mathematics was, like for the comparison and target groups, smaller than the graduation rate. There are, however, a couple of differences. First, the Tagalog subgroup joined the Creole in the lowest category with a participation rate that is almost 20 percentage points below the graduation average. Tagalog speakers tended to avoid programmes that required a mathematics course – an observation that is also true, to a lesser extent, for Tamil and Persian speakers. Recall that these subgroups are precisely those who largely tended to obtain a diploma in adult general education but in the English sector. Second, two subgroups had a participation rate in mathematics that was slightly higher than the graduation rate – the Vietnamese and the Chinese – which suggests that these two language subgroups have a particular attraction toward programmes that require taking a mathematics course.

Having examined general participation in mathematics, we turn to an examination of the selection of a particular course among the three mathematics courses available.

Among the students who had a mark in mathematics, over half had it in the high-selectivity course, while about a third had it in the low-selectivity course. Such an observation applies to the comparison group as well as the target group. However, note that, compared with French-speakers, non-French speakers took the high-selectivity course slightly more often (54.6% versus 51.7%) as well as the low-selectivity course (32.3% versus 30.5%). This means that far less often they take the medium-selectivity course (13.1% versus 17.8%).

Within the target group, different behaviours were observed across the various language subgroups. But, given the fact that the proportion of those who elected to take the medium-selectivity course was similar across language subgroups (although lower for the Chinese subgroup and much higher for the Tagalog subgroup), choosing the high-selectivity course was close to being the mirror image of choosing the low-selectivity course.

A look at the relative positions of the various language subgroups with regard to the choice of the high-selectivity course (or its mirror image, the choice of the low-selectivity course) leads us once again to fall back on the 4-category typology set forth earlier on the basis of the graduation rate. However there are a few differences that are worth mentioning. First, in the low category the Tamil subgroup selected the high-selectivity course somewhat more often (and thus the low-selectivity course less often) than the other members of that category (Spanish, Portuguese and Tagalog). By contrast, the Tagalog subgroup, a member of the same category, chose the low-selectivity course somewhat less often, because, compared with all other subgroups, it had a high propensity to choose the medium-selectivity course. Second, observe that in the highest category Chinese speakers had a much higher propensity than Vietnamese and Romanian speakers to choose the high-selectivity course, thus illustrating the particular attraction of Chinese speakers for the more difficult mathematics course. At the other extreme, Creole speakers tended to shy away from this course, since less than 1 in 6 chose it.

Finally, let us turn to the marks in the low- and high-selectivity courses. Compared with French speakers, non-French speakers had a slightly lower average score in the low-selectivity course (64.9 versus 65.7), but a slightly higher one in the high-selectivity course (74.2 versus 73.5). The performance of non-French speakers varied substantially across language subgroups, but similar patterns were observed with respect to both the low- and high-selectivity courses. The ensuing

relative positions of the various subgroups resemble the relative positions previously discussed with respect to graduation rates. There are a few peculiarities worth observing. Creole speakers are at the bottom, followed by Spanish and Portuguese speakers. Persian and Arabic speakers come next and finally, at the top, Vietnamese and Romanian speakers. Missing here are three subgroups: first, the Tamil subgroup, which appeared at the bottom in the case of the low-selectivity course (but only 8 students are of concern here) but in the intermediate category in the case of the high-selectivity course; second, the Tagalog subgroup, which was in the top category in the case of the low-selectivity course and in the intermediate one in the case of high-selectivity course; and third, the Chinese subgroup, which was in the middle of the pack in the case of the low-selectivity course but way above all subgroups in the case of the high-selectivity course. However, such an observation is not so surprising in the light of the choice of a particular mathematics course within the subgroups concerned. Comparatively fewer Chinese speakers took the low-selectivity course and thus the few that did performed comparatively worse. Similarly, comparatively fewer Tagalog speakers took the high-selectivity course and thus the few that took it performed comparatively better and thus had a comparatively higher score.

To summarize, if French speakers had the advantage in the low-selectivity course, non-French speakers had it in the high-selectivity course, thanks to the better performance of some language subgroups, in particular the Romanian and Chinese subgroups.

Science

Turning to science, let us first examine participation and performance in Physics 416, which students take in *Secondaire 4* and must pass in order to graduate. Thus, going back to what was said earlier about French taken in *Secondaire 5*, participation here is likely to reflect the capacity of reaching *Secondaire 4*. As suggested in the figures in Table 21, marks were substantially lower for non-French speakers than for French speakers (69.2% versus 74.0%). Moreover, it varied widely across language subgroups. Here also the variations that can be observed lead to the identification of four categories, which once again resemble those identified previously. In order of decreasing participation, they were:

- high participation: Romanian, Chinese and Vietnamese subgroups;
- average participation: Persian and Arabic subgroups;
- low participation: Portuguese and Spanish;

- very low participation: Tamil, Creole and Tagalog subgroups.

Table 21
Language used at home: Participation and performance in Science, Montreal
Physics 416, Sec. 4 (low selectivity)

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	3,286	69.2	75.5
Subgroups			
Spanish	471	65.6	71.3
Arabic	407	76.9	76.1
Creole	186	52.0	67.9
Chinese	254	86.4	83.5
Vietnamese	164	90.1	80.6
Portuguese	75	63.0	68.3
Persian	67	69.1	76.5
Tagalog	50	52.1	73.8
Romanian	77	85.6	85.2
Tamil	42	49.4	72.4
French Speakers	6,814	74.0	76.0

Science, Sec. 5 (Physics 534 + Chemistry 534) (high selectivity)

Language used at home	Participation		Average score
	N	%	
Non-French Speakers			
All	1,291	27.2	76.0
Subgroups			
Spanish	111	15.5	71.7
Arabic	189	35.7	75.5
Creole	15	4.2	68.7
Chinese	171	58.2	80.4
Vietnamese	100	54.9	77.7
Portuguese	11	9.2	69.8
Persian	30	30.9	72.3
Tagalog	18	18.8	70.5
Romanian	50	55.6	78.5
Tamil	20	23.5	72.6
French Speakers	2,249	24.4	76.8

The difference here is that the Tamil and Tagalog subgroups join the Creole subgroup at the bottom of the spectrum.

Non-French speakers participated somewhat less than French speakers but their average score was a little lower (75.5 versus 76.0). Within the target group, there are again wide variations, but the relative positions of the language subgroups in terms of performance are similar to their relative positions in terms of participation, although there are a few differences. The Portuguese subgroup dropped from the low category to the lowest one, whereas, by contrast, the Tamil and Tagalog subgroups moved from the lowest category to the low one.

Finally, let us turn to the high-selectivity course in sciences in which, according to our definition, a student is viewed as participating if he or she has a mark in both Physics 534 and Chemistry 534 offered in *Secondaire 5*. About one-fourth of the participants took Physics and Chemistry – slightly more non-French speakers (27.2%) than French speakers (24.4%). But like in the selection of the highly selective mathematics course, there was wide variation among subgroups. Categories similar to those assembled for high-selectivity mathematic, may be assembled here:

- high participation: Vietnamese, Romanian and Chinese speakers;
- medium-high participation: Persian and Arabic speakers;
- average participation: Spanish, Tagalog and Tamil speakers;
- low participation: Creole and Portuguese speakers.

Finally, in terms of performance measured as the arithmetic mean of the scores obtained in the two underlying subjects (Physics 534 and Chemistry 534), there was little difference between the target and comparison groups – the average score of non-French speakers is marginally lower than that of French speakers: 76.0 versus 76.8 – but there was wide disparities across the language subgroups that closely resemble those for participation. In other words, the more a language subgroup participated in sciences, the more they succeeded in terms of average score. This performance, it must be noted, was highly similar to the performance in the highly selective mathematics course.

2.2.2 Multivariate regression analysis

As described in section 1.3.1.2, this subsection is a multivariate regression analysis of the academic performance of non-French speakers. Specifically, it is intended to shed some light on two indicators: first, their graduation rate two years after expected and, second, their rate of

participation in a selective course. For each indicator, this is done by successively answering the following three questions:

1) After controlling for differences in student characteristics[20], how did the target group and its various language subgroups fare with respect to the comparison group?
2) How did the student characteristics influence the target group and its various language subgroups?
3) Did these characteristics affect the comparison group in the same way?

2.2.2.1 Graduation rates two years after expected

1 - Comparative performance of non-French speakers and various subgroups

Initially, the idea here is to examine how being a member of the target group rather than the comparison group influenced the probability of graduating. Basically, this is done by estimating, for the whole cohort under study, a series of models explaining graduation, using alternative sets of independent variables.

First, a model was run, using a single independent variable reflecting membership in the target group. The results of this model are shown in Table 22. As suggested by the 1.08 value taken by the corresponding odds ratio, non-French speakers graduated slightly more, but not significantly more, than French speakers (see Model 2). Second, a model was run in which we added to the target group variable as many variables as there are student characteristics. The target group variable sees its odds ratio increase to 1.39 and becomes significant (see Model 3). In other words, once the characteristics of the students were controlled for, non-French speakers had a probability of graduating that is substantially and significantly higher than that of French speakers.

[20] In this report, the expression "student characteristics" is meant to include the individual characteristics of the students as well as the characteristics of the schools they attend.

Table 22
Graduation: Differences between target group (non-French speakers) and subgroups and comparison group (French speakers) with or without control variables, Montreal

N = All target and non-target: 13,960

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. French)										
▪ All non-French			1.08		1.39	***				
Language subgroup variables (ref. French)										
▪ Spanish							0.87		1.00	
▪ Arabic							1.62	***	1.97	***
▪ Creole							0.52	***	0.78	*
▪ Vietnamese							2.78	***	2.99	***
▪ Chinese							2.70	***	4.08	***
▪ Other non-French speakers							1.07		1.40	***
Variance of random intercept s2u	3.81	***	3.81	***	1.65	***	3.77	***	1.66	***
Intra-class correlation (% of total variance at school level)	53.7%		53.7%		33.4%		53.4%		33.5%	
% of school level variance explained by model			-0.1%		37.7%		0.5%		37.6%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

The behaviour of the target group just uncovered is not likely to hold for each and every one of the selected home languages and thus the next step was to rerun the two models previously estimated by substituting a set of independent variables reflecting membership in the various language subgroups for the independent variable reflecting membership in the whole target group. This time, even before controlling for differences in the student characteristics, some interesting results emerged (see Model 4). With the exception of the Spanish subgroup, all selected language subgroups appeared to have an effect on graduation rates that was significantly different from that of the reference group. More specifically, in comparison to French speakers, Creole speakers had a significantly lower probability of graduating (half as much), while Arabic

speakers (one and a half times), and Vietnamese and Chinese speakers (close to three times)[21] had a significantly higher probability.

Next, controlling for the characteristics of the students did not radically affect this ranking order (see Model 5). Whereas Spanish speakers still had an impact that cannot be distinguished from that of French speakers, the other subgroups kept their significantly different impact. However, the differential impact of each subgroup with respect to the reference category appears to have changed somewhat in value. If the difference for Creole speakers is reduced (and is now significant but at the lowest level of significance), the difference for the other three subgroups increased more or less. Specifically, it would appear that the graduation advantage of each subgroup with respect to French speakers was twice as much for Arabic speakers, three times as much for Vietnamese speakers and four times as much for Chinese speakers. It was also observed that, if it was not significant before controlling for the student characteristics, the residual language subgroup[22] became a highly significant one after controlling for these characteristics.

Finally, it should be noted that the variance regarding graduation rate is in large part explained by the differences that exist between schools. Not only is the variance associated with the schools, or school level variance, highly significant, but it also represents about half of the total variance in graduation. Moreover, because the introduction of the control variables reduces the variance associated with the school to about a third, it follows that differences in the student composition between schools represent slightly under a third (37.6%) of the school level variance. This leaves over 2/3 to factors not covered by our study. But differences in home language composition play absolutely no role in this, as suggested by the virtually identical values taken by the intra-class correlation index in the models with and without the variable(s) relating to home language.

[21] In this section, any statement on the magnitude of a differential impact pertaining to a student characteristic is based on the value of the associated odds ratio.

[22] This residual sub-group includes all students in the target group who do not belong to the five selected language sub-groups.

2 - The impact of socio-demographic, schooling process and school characteristics

The objective here is to determine how, in the target group, student characteristics influenced the probability of graduating. The characteristics included were those described and defined in section 1.3.1.2 (Table 3), grouped in three categories: socio-demographic, schooling process and school level variables, to which we naturally added home language, thus creating a fourth category: language subgroups. The results of the ensuing model, applied to all non-French speakers, appear in Table 23.

Beginning with the socio-demographic variables, it appears that, among non-French speakers, only one of the three variables assumed to account for the most popular strands of the sociological literature in explaining school performance was significant: females have a 70% higher probability of graduating than males. Family income is not significant, nor is birthplace: being born in or outside Canada makes no difference. Whereas the former result about the impact of family income is in line with the conclusions of international research, the latter result about the impact of birthplace is more surprising.

Schooling process variables, however, performed as expected. Three of them appear to have had substantial and significant negative impact on the probability of graduating for non-French speakers. Specifically, changing schools within five years of entering *Secondaire 1* reduced this probability by a third; having received some help in French (*soutien linguistique*) at one point or another during secondary schooling reduced it by a half; and finally being late upon entry in *Secondaire 1* reduced it by about two-thirds. The fourth and last schooling process variable, however, was not significant: the level of entry into the school system made no difference to the graduation rate of non-French speakers.

Table 23
Graduation: Impact of language group, socio-demographic, schooling process and school level variables (target group), Montreal

Variables	N = All target: 4,750	Empty model		Full model	
		Odds -ratio	Sig	Odds-ratio	Sig
Language subgroups (ref. Other non-French speakers)	Spanish			0.70	***
	Arabic			1.42	***
	Creole			0.48	***
	Vietnamese			2.20	***
	Chinese			2.68	***
Socio-demographic	Female (ref. Male)			1.68	***
	Median family income			1.00	
	Immigrant (ref. Born in Canada)			1.11	.
Schooling process	Late upon entry (ref. Early or on time)			0.39	***
	Changed school (ref. No)			0.67	***
	Soutien linguistique in high school (ref. No)			0.50	***
	Entry in *Secondaire 1* (ref. Primary)			0.96	
School level	Index of challenge for public schools 8-10 (ref. Other)			0.93	
	Attended private school (ref. Public)			3.24	***
	Percentage of target group in the school 26-50% (ref. 0-25%)			0.98	
	Percentage of target group in the school 51-75% (ref. 0-25%)			0.99	
	Percentage of target group in the school 76-100% (ref. 0-25%)			0.51	**
Variance of random intercept s2u		**2.24**	*******	**0.79**	*******
Intra-class correlation (% of total variance at school level)		**40.5%**		**19.4%**	
Percentage of school variance explained by model				**52.0%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

School level variables produced mixed results. Attending a private rather than a public school strongly increased the probability of graduating (three times as much), but, given the general disadvantage of the public school, attending a school identified as socio-economically challenged did not reduce further the probability of graduating, because, if this variable had a negative

impact, it was a small and insignificant one. As for the proportion of non-French speakers in the school attended, it did not seem to have an impact until it reached a critical value. Indeed, the odds ratio associated with each dummy variable used to account for this factor was barely different from 1 for the two categories next to the reference category, but it dropped to 0.51 while being highly significant for the highest category (more than 75% of non-French speakers). In other words, the presence of non-French speakers did not reduce the probability of graduating as long as it did not surpass 75%.

Finally, in comparison to the members of the reference group consisting of the residual category defined earlier, Spanish and especially Creole speakers had a lesser probability of graduating, about 30% and 50% less, respectively. By contrast, Arabic speakers were more likely to graduate (by about 40%), as were Vietnamese speakers (twice as much) and Chinese speakers (between two and three times as much). In all cases, the ensuing impact differential was highly significant (at 0.001 or less)[23].

Here also the variance regarding graduation is in large part explained by the differences that exist between schools. Again, the school level variance was highly significant. Moreover, it represented around 40% of the total variance in graduation, this proportion fell to about 20% after introduction of the control variables, so that differences in the composition of non-French speakers between schools represented slightly over half (52%) of the school level variance.

Until now, the impact of student characteristics on the graduation of non-French speakers was examined for all regardless of home language. Since this impact was likely to vary with home language, the same regression model is re-estimated separately for each of the five selected language subgroups. The results are shown in Table 24.

Before proceeding, a word of caution is warranted. Given the relative smallness of the subgroups in terms of size, the impact of student characteristics on graduation performed worse for the selected language subgroups than for the whole target group. This also explains why the school level variance was rarely statistically significant (when it happens, it is also at the lower level of

[23] Interestingly, the five selected groups appear to have relative positions that are broadly similar to those stemming from Table 22. In other words, similar differences between language groups result from controlling for student characteristics at the level of either the whole cohort or the target group.

significance) and why the values taken by the proportion of the school level variance explained by the school characteristics should not be taken at face value.

Table 24
Graduation: Impact of socio-demographic, schooling process and school level variables by language subgroups, Montreal

Variables	Spanish N = 718		Arabic N = 529		Creole N = 358		Vietnamese N = 182		Chinese N = 294	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	1.39	**	2.45	***	1.29		3.97	**	1.83	*
▪ Median family income	1.00		0.99		1.00		1.01		1.01	
▪ Immigrant (ref. Born in Canada)	1.25		0.93		0.92		0.65		0.82	
Schooling process variables										
▪ Late upon entry (ref. Early or on time)	0.33	***	0.51	***	0.33	***	0.18	**	0.39	**
▪ Changed school (ref. No)	0.53	***	0.58	**	0.63	*	0.35	*	2.40	**
▪ *Soutien linguistique* in high school (ref. No)	1.06		1.41		0.41		0.29		0.42	
▪ Entry in *Secondaire 1* (ref. Primary)	0.46		0.41		1.09		0.40		0.54	
School level variables										
▪ Index of challenge for public schools 8-10 (ref. Other)	0.84		0.92		0.68		0.521		1.11	
▪ Attended private school (ref. Public)	2.09	*	1.55		1.78		5.315		2.05	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.08		0.77		0.81		2.311		0.59	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	0.70		0.80		0.80		0.880		0.57	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	0.92		0.87		0.26		0.788		1.89	
Variance of random intercept s2u	0.06		0.31		-0.00		0.9832		-0.0	
Intra-class correlation (% of total variance at school level)	1.7%		8.5%		0.0%		23.0%		0.0%	
Percentage of school level variance explained by model	72.9%		22.4%		100.0%		49.6%		100.0%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Starting with socio-demographic characteristics, gender appeared to behave for all language subgroups much in the same way it did for the whole target group: being a female rather than a male increased the probability of graduating. But the female advantage was particularly high for Chinese speakers (two times), Arabic speakers (two and a half times) and especially Vietnamese speakers (four times). The significance of this advantage, however, did not necessarily go along

with its strength because of the differing sizes of the various subgroups (from 182 for Vietnamese speakers to 718 for Spanish speakers). Thus, whereas it was not significant for Creole speakers, the female advantage was slightly significant for Chinese speakers, mildly significant for Spanish and Vietnamese speakers and highly significant for Arabic speakers.

Finally, what was observed for all non-French speakers was also true for each of the five language subgroups: gender was the only socio-demographic variable to be significant. In particular, being born outside rather than in Canada resulted in a slight advantage or disadvantage (depending on the subgroup), which under no circumstances was significant.

Regarding the schooling process variables, three of them behave for most of the groups in the same way that they did for all non-French speakers. Having entered the Quebec school system directly at the secondary level rather than at the primary level had no impact on the probability of graduating. Moreover, being late upon entry in *Secondaire 1* and having changed schools affected this probability negatively, although the level of significance varied across language subgroups because of the size problem alluded to earlier. There is, however, one exception: having changed schools increased rather than decreased the probability of graduating for Chinese speakers, a result that perhaps may be attributed to some kind of upward mobility process. With the improvement of their economic situation, members of the Chinese community do not hesitate to move to more affluent neighbourhoods, and thus their children change schools, which, everything else being equals, causes school performance to improve. As for the fourth and last schooling process variable, receiving help in French, had a significant (negative) impact for the whole target group, but it had none for each of the five selected subgroups.

Finally, unlike what was found for all non-French speakers, overall school level variables had no significant effect on the probability of graduating[24], even attending a private school, although this latter variable was slightly significant for Spanish speakers.

3 - Differences with the comparison group

[24] Here again, this is most likely an effect of the limited size of sub-groups.

Having examined the impact of student characteristics on graduation for the target group (non-French speakers) and its language subgroups, we now shift to an examination of the impact of the same factors for the comparison group (French speakers).

Unlike what was found for non-French speakers, all three socio-demographic variables, not just gender, had a significant impact on the graduation of French speakers (Table 25). Females had a much higher probability of graduating than males, close to twice as much but, in addition, family income and birthplace had a significant impact. Children in richer families were more likely to graduate, whereas those born outside Canada were also slightly more likely to graduate than those born in Canada[25].

Aside from the variable reflecting *soutien linguistique* (which for practical purposes can be ignored)[26], the schooling process variables behaved much in the same way as for non-French speakers. On the one hand, being late upon entry or having changed schools within 5 years of entry had a strong negative impact on graduation as suggested by respective odds ratio of 0.17 and 0.29. On the other hand, the level of entry into the Quebec school system had no significant impact on the probability of graduating.

[25] A fact that probably reflects the high level of qualification of recent francophone immigrants in Quebec.

[26] The presence of an estimated coefficient for this variable in Table 31 stems from the handful of students that, although they speak French at home, are in need of help with their French because it is not their mother tongue.

Table 25
Graduation: Impact of language group, socio-demographic, schooling process and school level variables (comparison group), Montreal

N = All non-target: 9,120

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			1.81	***
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			1.58	***
Schooling process variables				
▪ Late upon entry (ref. Early or on time)			0.17	***
▪ Changed school (ref. No)			0.29	***
▪ *Soutien linguistique* in high school (ref. No)			0.52	
▪ Entry in *Secondaire 1* (ref. Primary)			0.82	
School level variables				
▪ Index of challenge for public schools 8-10 (ref. Other)			0.46	*
▪ Attended private school (ref. Public)			2.04	*
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.59	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			2.06	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			2.19	
Variance of random intercept s2u	3.95	***	1.78	***
Intra-class correlation (% of total variance at school level)	54.5%		35.1%	
% of school level variance explained by model			35.7%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

School level variables, however, behaved in a way that was somewhat different from the one observed earlier for the target group. Attending a private rather than a public school still had a positive impact on graduation (twice more likely). Once the disadvantage of the public school was accounted for, attending a school identified as socio-economically challenged appeared – unlike what was observed for all non-French speakers – to reduce further the probability of graduating (by about one-half). The statistical significance of these two variables, however, was low in the sense it was established at the .10 level As for the third school level variable, the language composition of the school attended, it appeared to have no impact on the graduation of French speakers, whereas, the reader may recall, it had a negative impact when the proportion of non-French speakers in the school attended surpassed 75%.

Finally, just like for non-French speakers, the variance in the graduation of French speakers is, in a large part, explained, by the differences that exist between schools. Not only the variance associated with the schools, or school level variance, was highly significant, it also represented about half (54.5%) of the total variance. Moreover, as the introduction of the control variables reduced the variance associated with the school to about a third, it follows that differences in the student composition between schools represented over a third (35.7%) of the school level variance. The figures just quoted, it is interesting to note, are quite similar to the corresponding figures obtained earlier in the case non-French speakers (respectively 53.7% and 37.7%).

2.2.2.2 Access to university-bound or selective courses

As described in section 1.3.1.2, this variable was defined in Montreal as the participation in the highly selective courses specifically required to enter a natural/health sciences programme in CEGEP. The kind of participation to be analyzed next refers to having a mark in all three courses required (Mathematics 536, Physics 534 and Chemistry 534) and the ensuing analysis is restricted to students having a mark in French as a language of instruction in *Secondaire 5*[27].

1 - Comparative performance of non-French speakers and various subgroups

Here again, the idea is to examine how being a member of the target group influenced the dependent variable. The results are shown in Table 26.

Use of a single independent variable to reflect membership in the target group leads one to observe that non-French speakers had a significantly higher probability (by about one-half) of participating in selective sciences (see Model 2). Nevertheless, adding to this target group variable the set of independent variables associated with the various student characteristics leaves this result virtually unchanged (see Model 3).

Most likely, participation in selective sciences varies substantially across language subgroups. Indeed, breaking down the target group into the same language subgroups as before (including a residual group) leads to highly contrasted results (see Model 4). On the one hand, some language subgroups behave just like the whole target group in the sense that they were more likely than

[27] To ensure that it only relates to the students who have reached the later stages of secondary schooling.

the comparison group to participate in the selective sciences. Arabic speakers were likely to participate twice as much as French speakers, Vietnamese speakers three times as much and Chinese speakers six times as much. By contrast, Spanish speakers (by one fourth) and most of all Creole speakers (by three fourt), were less likely to participate than French speakers. Further, introduction of the student characteristics barely affected the results (see Model 5) as was the case when considering the target group as a whole.

Table 26
Participation in selective courses: Differences between target group (non-French speakers) and subgroups and comparison group (French speakers) with or without control variables, Montreal
N = All target and non target still in the system in Sec. 5: 9,360

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. French)										
▪ All non-French			1.61	***	1.49	***				
Language subgroup variables (ref. French)										
▪ Spanish							0.77	**	0.70	***
▪ Arabic							2.29	***	1.96	***
▪ Creole							0.26	***	0.26	***
▪ Vietnamese							3.41	***	3.49	***
▪ Chinese							5.90	***	5.87	***
▪ Other non-French speaking							1.53	***	1.38	***
Variance of random intercept s2u	0.54	***	0.54	***	0.27	***	0.51	***	0.26	***
Intraclass correlation (% of total variance at school level)	14.2%		14.1%		7.7%		13.4%		7.3%	
% of school level variance explained by model			0.9%		46.0%		5.4%		48.4%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

As was noted for graduation, the variance in participating in selective sciences is, in a large part, explained, by the differences that exist between schools. The school level variance was highly significant but here it represents a proportion of the total variance (14.1%) that was much lower than in the case of graduation. Moreover, as the introduction of the control variables reduced the variance associated with the school to just 7.7%, it follows that differences in the student

composition between schools represents slightly under half (46.0%) of the school level variance. Finally and once again, differences in home language composition did not play a role in this, as suggested by the nearly identical values taken by the intra-class correlation index with and without the variable(s) relating to home language.

2 - The impact of socio-demographic, schooling process and school characteristics variables

Table 27 displays the results of the impact of the student characteristics on the participation of non-French speakers in selective sciences.

Table 27
Participation in selective courses: Impact of language group, socio-demographic, schooling process and school level variables (target group), Montreal
N = All target still in the system in Sec. 5: 2,930

Variables	Montreal	Empty model		Full model	
		Odds ratio	Sig	Odds-ratio	Sig
Language subgroups (ref. Other non-French speakers)	Spanish			0.47	***
	Arabic			1.39	***
	Creole			0.14	***
	Vietnamese			2.43	**
	Chinese			4.15	***
Socio-demographic	Female (ref. Male)			0.91	
	Median family income			1.00	**
	Immigrant (ref. Born in Canada)			1.48	***
Schooling process	Late upon entry (ref. Early or on time)			0.63	***
	Changed school (ref. No)			0.52	***
	Soutien linguistique in high school (ref. No)			1.48	.
	Entry in *Secondaire 1* (ref. Primary)			1.69	*
School level	Index of challenge for public schools 8-10 (ref. Other)			1.17	
	Attended private school (ref. Public)			2.47	***
	Percentage of target group in the school 26-50% (ref. 0-25%)			0.75	
	Percentage of target group in the school 51-75% (ref. 0-25%)			0.61	*
	Percentage of target group in the school 76-100% (ref. 0-25%)			0.61	*
Variance of random intercept s2u		**0.73**		**0.32**	*******
Intra-class correlation (% of total variance at school level)		**18.1%**		**8.8%**	
Percentage of school level variance explained by model				**51.5%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Whereas gender was the only socio-demographic variable to be significant in the case of graduation, it is the only one here that was not significant: males and females had a similar probability of participating in selective sciences. By contrast, the other two variables were significant. Students in richer families were more likely to participate as were those born outside Canada (half more likely than those born in Canada).

Aside from *soutien linguistique*[28], the schooling process variables appeared to be significant. Being late upon entry and having changed schools lead to a lower probability of participating, just like they led to a lower probability of graduating. Moreover, unlike was the case with graduation, having entered the Quebec system at the primary level had a negative impact on participation (about 40% less). As a consequence, the foreign-born who immigrated at an early age and went to primary school were about as likely to participate as the Canadian-born.

The school level variables have a behaviour that is reminiscent of the one exhibited with respect to graduation. Attending a private rather than a public school resulted in a much higher probability to participate (more than twice as much), whereas attending a school identified as socio-economically challenged did not result in a participation deficit coming in addition to the one associated with attending a public school. Nevertheless, the linguistic composition of the school no more had a neutral impact. A higher proportion of non-French speakers reduced participation in selective courses but the difference appears to be significant only beyond a 50% proportion.

Finally, once the characteristics of all members in the target group and thus in its various language subgroup were accounted for, there appeared to subsist an unaccounted residual linked to home language. Compared to the reference category (non-French speakers other than the five selected language subgroups), Spanish speakers were half as likely to participate in selective sciences and Creole speakers seven times less likely. By contrast, members of the other three subgroups were more likely to participate: Arabic speakers a third more likely, Vietnamese speakers between two and three times more likely and Chinese speakers four times more likely[29]. In all cases, the difference uncovered with the reference category was highly significant.

Perhaps of lesser interest, the school level variance represents here only a small proportion of the total variance: 18.1% without control for student characteristics and 8.8% with control.

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[28] Having some difficulty with the French language to the point of receiving *soutien linguistique* does not appear to reduce ability to participate in selective sciences. It may even have a positive impact (as suggested by a value of the corresponding odds ratio greater than 1) but, if it is the case, this impact is not significant.

[29] Like for graduation, the relative positions of the various language sub-groups are here similar to those uncovered earlier in relation to the whole cohort under study.

The analysis of the impact of student characteristics for the target group was pursued further, separately for each language subgroups. Once again, the results obtained were less developed than for the whole target group, owing to the more or less ample size of the various language subgroups (Table 28). None of the various independent variables proved to be consistently significant across the language subgroups. Some of them were significant for one subgroup or another, but never for all selected subgroups.

Among socio-demographic variables, only gender appeared to be significant and this, only in the case of Creole speakers. In this language subgroup, females were five times less likely to participate in selective sciences than males! Schooling process variables perform somewhat better. Being late upon entry significantly reduced the probability to participate in selective sciences for four of the five subgroups: Spanish and Vietnamese speakers (3 times), Arabic and Chinese speakers (by a half). Additionally, having changed schools also reduced the participation for two subgroups: Arabic and Vietnamese speakers (by slightly over a half). Finally, just like socio-demographic variables, school level variables do not perform very well. Only two variables were found significant and this, only for the Arabic subgroup. Indeed, for members of this subgroup, attending a private rather than a public school strongly increased the probability of participating in selective sciences (three times), whereas, inexplicably, attending a school socio-economically challenged also increased the participation[30].

[30] Given the peculiar values obtained here, the results regarding the school level variance are not worth commenting here.

Table 28
Participation in selective courses: Impact of socio-demographic, schooling process and school level variables by language subgroups, Montreal

Variables	Spanish N = 443		Arabic N = 390		Creole N = 175		Vietnamese N = 157		Chinese N = 236	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	0.91		0.97		0.223	**	1.60		1.27	
▪ Median family income	1.01		1.01		1.028		1.01		1.01	
▪ Immigrant (ref. Born in Canada)	1.62		1.12		2.143		1.35		1.94	
Schooling process variables										
▪ Late upon entry (ref. Early or on time)	0.33	***	0.49	***	1.741		0.32	**	0.49	*
▪ Changed school (ref. No)	0.64		0.41	***	0.519		0.38	**	0.87	
▪ *Soutien linguistique* (ref. No)	1.92		1.71		0.576		24352.75		1.08	
▪ Entry in *Secondaire 1* (ref. Primary)	1.49		1.56		0.77		112.98		2.33	
School level variables										
▪ Index of challenge for public schools 8-10 (ref. Other)	1.24		1.85	*	0.701		1.33		0.81	
▪ Attended private school (ref. Public)	1.55		2.97	***	0.657		2.48		1.48	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.17		1.11		1.002		0.79		0.44	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	1.51		0.83		0.707		1.23		0.45	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	1.51		1.84		2.186		0.76		0.33	
Variance of random intercept s2u	-0.00		0.01		0.00		0.18		0.47	
Intra-class correlation (% of total variance at school level)	0%		4%		0%		5.1%		12.4%	
% of school level variance explained by model	100.0%		96.8%		190.1%		55.3%		27.8%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

3 - Differences with the comparison group

Our regression analysis of participation in selective sciences concludes with the identification of the impact of student characteristics in the comparison group, the results are displayed in Table 29.

Table 29
Participation in selective courses: Impact of socio-demographic, schooling process and school level variables (comparison group), Montreal

N = All non-target still in the system in Sec. 5: 6,430

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			0.90	*
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			1.70	***
Schooling process variables				
▪ Late upon entry (ref. Early or on time)			0.27	***
▪ Changed school (ref. No)			0.35	***
▪ *Soutien linguistique* in high school (ref. No)			3.27	
▪ Entry in *Secondaire 1* (ref. Primary)			1.25	
School level variables				
▪ Index of challenge for public schools 8-10 (ref. Other)			0.79	
▪ Attended private school (ref. Public)			1.79	***
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.17	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			1.24	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			1.90	
Variance of random intercept s2u	0.46	***	0.23	***
Intra-class correlation (% of total variance at school level)	12.2%		6.5%	
% of school level variance explained by model			46.2%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

To begin with, socio-demographic variables behave much in the same way as they did for the target group, as suggested by the similar values taken by corresponding odds ratios for the target group (Table 27) and the comparison group (Table 29). Whereas the statistically significant impact of the family income and birthplace variables remained in force – belonging to a richer family or being born outside rather than within Canada increased the probability of participating in selective sciences – gender which was found insignificant for non-French speakers was significant, although at a low level.

Next, of the four schooling process variables, two appear to be highly significant. Being late upon entry highly reduced the likelihood of participating (four times) as was having changed schools (three times). Again, these results are similar to those obtained for the target group

although the impact on the dependent variable is a bit stronger here. As for the other two variables in this category, none is significant here. Unlike what was observed for the target group, receiving *soutien linguistique* and arriving in the Quebec schooling system at the primary level did not have any impact on participation in selective courses.

Finally, most of the school level variables did not appear to have a significant impact, although there was an exception associated with the type of schools attended. Attending a private than a public almost doubled the probability of participating in selective sciences, whereas it tripled such participation in the case of the target group. The language composition of the school which played a small role for the target group did not play any with the comparison group.

Overall, the impact of the student characteristics is similar for the target and comparison groups and thus, in view of such similarity, it is not surprising that the school level variance behaves much in the same way as for the target group. It was significant and student characteristics accounted for approximately half of it: 46.2% versus 51.5% in the case of the target group.

2.3 EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF FOREIGN-BORN STUDENTS: DESCRIPTIVE DATA

In this section, we return to examining the characteristics displayed by the students but this time emphasizing differences by birthplace rather than by language used at home as was done in section 2.1. The focus is primarily on the differences that stem from being born in Canada or not and secondly, for those born outside Canada, on the differences according to broad region of birth.

Whereas the comparison group was made up of the 10,140 students born in Canada, the target group consisted of the 3820 students born outside Canada – that is, slightly more than 1 in 4 (27.4%). Within this target group, are distinguished several subgroups according to region of birth, denoted hereafter as birth subgroups.

As described in section 1.3.2, in Montreal, we selected six regions: West Central Asia and the Middle East with 607 students (18.9% of the target group), the Caribbean and Bermuda with 496 students (13.0% of the target group), Eastern Europe with 380 students (9.9% of the target

group), Southern Asia with 340 students (8.9% of the target group), Northern Africa with 316 students (8.3% of the target group) and Eastern Asia with (217 students or 5.7% of the target group)[31] (Table 30).

Before moving on, it is worthwhile to stress some information which was partially shown previously (Table 5 of section 2.2). Among the 3,820 students who made up the target group, non-French speakers (2,892) outnumber French speakers (928) in the proportion of about 3 to 1. In decreasing order of numerical importance, the languages most spoken at home by those students were: Spanish (468), Arabic (415) and Creole (253). Next come English (208), Russian (199) and Chinese (167), whereas all other language subgroups were below 100. By contrast, among the 10,140 students in the comparison group, a large majority spoke French at home, thus leaving 1,858 students, or less than 1 in 5 who spoke a language other than French.

2.3.1 Characteristics of the target and comparison groups and of subgroups

1 – Enrolment in public or private schools

Table 30
Region of birth: Enrolment in public or private schools, Montreal

Region of birth	Public		Private		Total
	N	%	N	%	N
Outside Canada					
All	3,121	81.7	699	18.3	3,820
Subgroups					
West Central Asia and the Middle East	441	72.7	166	27.3	607
Caribbean and Bermuda	459	93.1	34	6.9	493
Eastern Europe	257	67.6	123	32.4	380
Southern Asia	338	99.4	**	**	340
Northern Africa	248	78.5	68	21.5	316
Eastern Asia	169	77.9	48	22.1	217
Canada	6,452	63.6	3,688	36.4	10,140

** Below 10 students.

[31] Let's recall that five of these groups are shared with Toronto, while Northern Africa is specific to Montreal.

We already know from section 2.1 that about 31.4% of the full cohort attended a private school and that this proportion was lower for non-French speakers than for French speakers. We encountered the same trends here. Whereas slightly over 1 in 3 (36.4%) among the students born in Canada attended a private school, a little less than 1 in 5 (18.3%) among those born outside Canada did so. But, the latter proportion conceals wide variations across birth regions. If for some subgroups, attendance at a private school did not depart much from the target group average (Northern Africa and Eastern Asia), it was substantially higher for West Central Asia and the Middle East and Eastern Europe and, on the contrary, much smaller for the Caribbean and Bermuda and even trivial for Southern Asia.

Just like in section 2.2, the proportion of the students in the private sector was often not high enough to cause the results for the public sector to differ substantially from those for the two sectors lumped together. Thus, after discussing the results for the two sectors together, there is often no need to discuss the results for the public sector alone.

2 - Socio-demographic characteristics

Gender

As suggested by the figures in Table 31a, males outnumbered females in the target group, whereas there were practically as many males as there were females in the comparison group. Specifically, among those born outside Canada, there were 52 males for 48 females but this overall distribution between the two genders conceals marked differences across birth subgroups. Some subgroups resembled the target group, for they included more males than females although the female shortfall may vary in size from small in the case of the Eastern Europe subgroup to large in the case of the Northern Africa and Southern Asia subgroups. On the contrary, other subgroups had a higher proportion of females: Eastern Asia and especially Caribbean and Bermuda.

Table 31a
Region of birth: Gender, Montreal

Region of birth	Male		Female	
	N	%	N	%
Outside Canada				
All	1,981	51.9	1,839	48.1
Subgroups				
West Central Asia and the Middle East	321	52.9	286	47.1
Caribbean and Bermuda	230	46.7	263	53.3
Eastern Europe	192	50.5	188	49.5
Southern Asia	189	55.6	151	44.4
Northern Africa	172	54.4	144	45.6
Eastern Asia	106	48.8	111	51.2
Canada	5,085	50.1	5,055	49.9

Actually, to stay with the target group, the overall gender imbalance just noted in favour of males applies, as could be expected, to the public sector (see Table 31b), but in the private sector there was rather a higher proportion of females (see Table 31c). In other words, as far as the target group is concerned, the gender distribution observed in the two sectors kind of mirror each other. Such symmetry between the two sectors, it turns out, is not limited to the target group, for it also holds for the comparison group.

Table 31b
Region of birth: Gender (public sector), Montreal

Region of birth	Male		Female	
	N	%	N	%
Outside Canada				
All	1,649	52.8	1,472	47.2
Subgroups				
West Central Asia and the Middle East	242	54.9	199	45.1
Caribbean and Bermuda	216	47.1	243	52.9
Eastern Europe	133	51.8	124	48.2
Southern Asia	189	55.9	149	44.1
Northern Africa	137	55.2	111	44.8
Eastern Asia	82	48.5	87	51.5
Canada	3,266	50.6	3,186	49.4

Table 31c
Region of birth: Gender (private sector), Montreal

Region of birth	Male		Female	
	N	%	N	%
Outside Canada	332	47.5	367	52.5
Canada	1,819	49.3	1869	50.7

Socio-economic status

Clearly, the target and the comparison groups had very different quintile distributions according to median family income (Table 32a). Whereas the comparison group distribution was slightly biased toward the top three quintiles (which each contain a little over one-fifth of its members) at the expense of the bottom two quintiles, and especially the lowest quintile, the target group was heavily biased in the opposite direction, with one-third of its members in the lowest quintile and another quarter in the low quintile. As one could be expected, the foreign-born belonged to less affluent families than the Canadian-born.

Table 32a
Region of birth: Median family income in EA of residence, Montreal

Region of birth	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Outside Canada										
All	1,306	34.4	905	23.8	648	17.1	521	13.7	418	11.0
Subgroups										
West Central Asia and the Middle East	197	32.6	133	22.0	103	17.0	86	14.2	86	14.2
Caribbean and Bermuda	208	42.4	138	28.1	80	16.3	51	10.4	14	2.9
Eastern Europe	103	27.3	79	21.0	71	18.8	76	20.2	48	12.7
Southern Asia	185	55.1	75	22.3	32	9.5	29	8.6	15	4.5
Northern Africa	74	23.4	84	26.6	74	23.4	46	14.6	38	12.0
Eastern Asia	62	29.4	43	20.4	31	14.7	27	12.8	48	22.7
Canada	1,477	14.6	1,880	18.6	2,139	21.1	2,266	22.4	2,358	23.3

For most birth subgroups, the quintile distribution resembled more or less that of the whole target group. There are, however, two subgroups that stand out in that they had a comparatively higher

proportion in the lowest category and a comparatively lower proportion in the highest category. They are the Caribbean and Bermuda and the Southern Asia subgroups. Clearly, the students in those two birth subgroups belonged to less affluent families than those in the target group and a fortiori those in the comparison group.

Turning to the private sector only, Table 32c shows a quintile distribution which favours the top two quintiles at the expense of the bottom two, but somewhat less for the target group than for the comparison group, for one-half of the foreign-born were in the top two quintiles versus two-thirds of the Canadian-born. Moreover, as suggested by a comparison with Table 32b, the quintile distributions were more favourable in the private than in the public sectors for both groups.

Table 32b
Region of birth: Median family income in EA of residence (public sector), Montreal

Region of birth	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Outside Canada										
All	1,200	38.7	789	25.4	517	16.7	392	12.6	205	6.6
Subgroups										
West Central Asia and the Middle East	167	37.9	104	23.6	67	15.2	57	12.9	46	10.4
Caribbean and Bermuda	197	43.1	130	28.4	71	15.5	49	10.7	10	2.2
Eastern Europe	78	30.6	58	22.7	49	19.2	45	17.6	25	9.8
Southern Asia	185	55.4	74	22.2	32	9.6	29	8.7	14	4.2
Northern Africa	68	27.4	68	27.4	62	25.0	35	14.1	15	6.0
Eastern Asia	56	34.4	41	25.2	25	15.3	17	10.4	24	14.7
Canada	1,279	19.9	1,507	23.4	1,513	23.5	1,295	20.1	849	13.2

Table 32c
Region of birth: Median family income in EA of residence (private sector), Montreal

Region of birth	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Outside Canada	106	15.3	116	16.7	131	18.8	129	18.6	213	30.6
Canada	198	5.4	373	10.1	626	17.0	971	26.4	1 509	41.0

3 - Schooling process variables

Age when entering high school

Among the students born in Canada, 1 in 5 arrived later than expected, including a small proportion who were late by two or more years (see Table 33a for the two sectors lumped together). By contrast, among the students who were born outside Canada, a huge proportion arrived late: almost 1 in 2, including a substantial proportion (14.1%) with a delay of two years or more but caution should be exercised in drawing some inference from this contrast, for the entry of the foreign-born students may have be influenced by 1) a differing normal school progression in their country of origin and 2) particular circumstances surrounding their arrival in Canada.

Table 33a
Region of birth: Age when entering high school, Montreal

Region of birth	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Outside Canada								
All	224	5.9	1,769	46.3	1,289	33.7	538	14.1
Subgroups								
West Central Asia and the Middle East	43	7.1	315	51.9	183	30.1	66	10.9
Caribbean and Bermuda	**	**	152	30.8	242	49.1	97	19.7
Eastern Europe	13	3.4	219	57.6	112	29.5	36	9.5
Southern Asia	**	**	106	31.2	142	41.8	89	26.2
Northern Africa	25	7.9	171	54.1	90	28.5	30	9.5
Eastern Asia	14	6.5	117	53.9	56	25.8	30	13.8
Canada	456	4.5	7,708	76.0	1,856	18.3	120	1.2

** Below 10 students.

Late arrival is a feature common to all birth subgroups considered here but its magnitude varies across birth subgroups. On the one hand, 4 out of the 6 subgroups (West Central Asia and the Middle East, Caribbean and Bermuda, Northern Africa and Eastern Asia) had a distribution by age of arrival that does not depart much from that of the target group, although globally the proportion of those arriving later than expected was a bit lower. On the other hand, the remaining

two subgroups (Caribbean and Bermuda and Southern Asia) had a substantial fraction of their students who arrived late: 2 in 3, including a sizeable proportion arriving two or more years late.

Some students arrived earlier rather than on time. They represent a 4.5% proportion among students born in Canada, but constitute a slightly higher proportion (5.9%) among those born outside Canada.

Let us turn now to the private sector (Table 33c).Whereas less than 1 in 10 members of the comparison group arrived late, 1 in 5 members of the target group did so. Moreover, among those that were not on time, the proportion of those who were late by two or more years was much higher among the foreign-born than the Canadian-born. Also, if the members of the target group arrived later than those of the comparison group, at the same time they also tended to arrive earlier: 1 in 5 foreign-born arrived early versus only 1 in 10 Canadian-born. Finally, to conclude with age of arrival, a direct comparison of the tables relating to the two sectors (Tables 33b and 33c) leads to a finding that applies to both the target and comparison groups. In both cases, students arrived much later in the public than in the private sectors but this phenomenon was more evident for the target group than the comparison group. More than 1 in 2 foreign-born arrived late in the public sector versus 1 in 5 in the private sector. By contrast, less than 1 in 4 Canadian-born arrived late in the public sector versus less than 1 in 10 in the private sector.

Table 33b
Region of birth: Age when entering high school (public sector), Montreal

Region of birth	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Outside Canada								
All	67	2.1	1364	43.7	1,174	37.6	516	16.5
Subgroups								
West Central Asia and the Middle East	11	2.5	213	48.3	154	34.9	63	14.3
Caribbean and Bermuda	**	**	137	29.8	230	50.1	92	20.0
Eastern Europe	**	**	137	53.3	82	31.9	34	13.2
Southern Asia	**	**	104	30.8	142	42.0	89	26.3
Northern Africa	14	5.6	127	51.2	80	32.3	27	10.9
Eastern Asia	**	**	89	52.7	44	26.0	30	17.8
Canada	109	1.7	4,645	72.0	1,587	24.6	111	1.7

** Below 10 students.

Table 33c
Region of birth: Age when entering high school (private sector), Montreal

Region of birth	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Outside Canada	157	22.5	405	57.9	115	16.5	22	3.1
Canada	347	9.4	3,053	83.1	269	7.3	**	**

** Below 10 students.

Level of entry into the school system

The vast majority of Canadian-born students (9 in 10) come from a primary school located in the Montreal region (see Table 34a for the two sectors together). The rest (1 in 10) may have done their primary schooling somewhere else in Quebec or the rest of Canada. By contrast, only three-fourths of the foreign-born students come from a primary school in Montreal. Like their Canadian-born counterpart, they may have done (part or all of) their primary schooling somewhere else in Canada or, because they are likely to belong to immigrant families freshly installed in Montreal, outside Canada.

Table 34a
Region of birth: Level of entry into the school system, Montreal

Region of birth	In primary in Montreal		Newcomers born in Canada		Newcomers born outside Canada	
	N	%	N	%	N	%
Outside Canada						
All	2,861	74.9	**	**	959	25.1
Subgroups						
West Central Asia and the Middle East	483	79.6	**	**	124	20.4
Caribbean and Bermuda	367	74.4	**	**	126	25.6
Eastern Europe	302	79.5	**	**	78	20.5
Southern Asia	180	52.9	**	**	160	47.1
Northern Africa	255	80.7	**	**	61	19.3
Eastern Asia	147	67.6	**	**	70	32.3
Canada	9,190	90.6	950	9.4	**	**

** Below 10 students.

The proportion of the foreign-born who did not come from the primary sector in Montreal varies more or less across birth subgroups and this, in direct relation with the importance of each birth subgroup in recent immigration to Quebec. Whereas it was about average for 4 out of the 6 birth subgroups, it was much higher for the Eastern Asia subgroup and especially the Southern Asia subgroup. As much as one-third of Eastern Asians and one-half of the Southern Asians that entered *Secondaire 1* were students that had just arrived from their native country!

The above contrast between the target and the comparison groups holds for the public sector, as there is a lower proportion of students coming from a primary school in Montreal in the former group than in the latter group: 72.1% versus 95.3% (Table 34b).In the private sector, however, this is reversed: 87.6% versus 82.4% (Table 34c). Actually, looking at the two tables side by side reveals that the proportion of the foreign-born who attended primary school in Montreal was much lower in the public than in the private sector, whereas the corresponding proportion in the comparison group was somewhat higher.

Table 34b
Region of birth: Level of entry into the school system (public sector), Montreal

Region of birth	In primary in Montreal		Newcomers born in Canada		Newcomers born outside Canada	
	N	%	N	%	N	%
Outside Canada						
All	2,249	72.1	**	**	872	27.9
Subgroups						
West Central Asia and the Middle East	335	76.0	**	**	106	24.0
Caribbean and Bermuda	338	73.6	**	**	121	26.4
Eastern Europe	186	72.4	**	**	71	27.6
Southern Asia	178	52.7	**	**	160	47.3
Northern Africa	198	79.8	**	**	50	20.2
Eastern Asia	103	60.9	**	**	66	39.1
Canada	6,151	95.3	301	4.7	**	**

** Below 10 students.

Table 34c
Region of birth: Level of entry into the school system (private sector), Montreal

Region of birth	In primary in Montreal		Newcomers born in Canada		Newcomers born outside Canada	
	N	%	N	%	N	%
Outside Canada	612	87.6	**	**	87	12.4
Canada	3,039	82.4	649	17.6	**	**

** Below 10 students.

Frequency of school changes

In the 5 years following their enrolment in *Secondaire 1*, about one-third of the students in this study attended a school other than the one in which they were initially enrolled, although a slightly higher percentage was observed for the foreign-born than the Canadian-born (36.0% versus 32.9%) (see Table 35a for the two sectors together).

Table 35a
Region of birth: Frequency of school changes (within 5 years of entering *Secondaire 1*), Montreal

Region of birth	No school change		At least one school change	
	N	%	N	%
Outside Canada				
All	2,446	64.0	1,374	36.0
Subgroups				
West Central Asia and the Middle East	389	64.1	218	35.9
Caribbean and Bermuda	314	63.7	179	36.3
Eastern Europe	243	63.9	137	36.1
Southern Asia	251	73.8	89	26.2
Northern Africa	186	58.9	130	41.1
Eastern Asia	135	62.2	82	37.8
Canada	6,805	67.1	3,335	32.9

Moreover, only small differences can be observed across the various birth subgroups. The proportion of those who changed schools at least once is generally quite close to the target group

average although members of the Northern African subgroup moved out of the initial school a bit more often than those of the Southern Asian subgroup.

A similar pattern of school changes within five years of entry can be found in the private sector although this time changing school was slightly less frequent for the foreign-born than the Canadian-born (73.4% versus 70.1%) (Table 35c).

Table 35b
Region of birth: Frequency of school changes (within 5 years of entering *Secondaire 1*) (public sector), Montreal

Region of birth	No school change		At least one school change	
	N	%	N	%
Outside Canada				
All	1,933	61.9	1,188	38.1
Subgroups				
West Central Asia and the Middle East	263	59.6	178	40.4
Caribbean and Bermuda	292	63.6	167	36.4
Eastern Europe	154	59.9	103	40.1
Southern Asia	250	74.0	88	26.0
Northern Africa	140	56.5	108	43.5
Eastern Asia	100	59.2	69	40.8
Canada	4,218	65.4	2,234	34.6

Table 35c
Region of birth: Frequency of school changes (within 5 years of entering *Secondaire 1*) (private sector), Montreal

Region of birth	No school change		At least one school change	
	N	%	N	%
Outside Canada	513	73.4	186	26.6
Canada	2,587	70.1	1,101	29.9

Finally, looking at Tables 35b and 35c side by side reveals that the phenomenon of changing schools was more prevalent in the public than in the private sector, for both the target and comparison groups. But the difference between the two sectors in terms of the propensity of

moving out of the initial school was much less in the case of the target group than in the case of the comparison group.

Soutien linguistique during secondary schooling

As the Canadian-born with a mother tongue other than French who came from a primary school in Quebec have normally benefitted from *soutien linguistique* during their primary schooling, one would expect these students not to need further *soutien linguistique* during their secondary schooling, except perhaps in rare circumstances. As a result, the members of the comparison group having received *soutien linguistique* during their secondary schooling should be small even though it could include a few non-French speakers from the rest of Canada recently arrived in Montreal - hence the 20 Canadian-born students with a yes value in Table 36a for the two sectors together.

Table 36a
Region of birth: *Soutien linguistique* during secondary schooling, Montreal

Region of birth	No		Yes	
	N	%	N	%
Outside Canada				
All	2,901	75.9	919	24.1
Subgroups				
West Central Asia and the Middle East	492	81.1	115	18.9
Caribbean and Bermuda	372	75.5	121	24.5
Eastern Europe	296	77.9	84	22.1
Southern Asia	157	46.2	183	53.8
Northern Africa	259	82.0	57	18.0
Eastern Asia	132	60.8	85	39.2
Canada	10,120	99.8	20	0.2

Just the same, if they did their primary schooling in Quebec, the foreign-born in need of help with their French received *soutien linguistique* on this occasion and thus, except for special cases, they do not need additional *soutien linguistique* during their secondary schooling. And thus, it comes as no surprise that the proportion of the foreign-born who received *soutien*

linguistique at one point or another during secondary school (24.1%) is similar to the proportion estimated earlier of the newcomers to the Montreal school system (25.1%)[32].

Among the various birth subgroups, those with some kind of affinity with the French language/culture had a proportion of students receiving *soutien linguistique* that is below or about the target group average: Northern Africa, West Central Asia and the Middle East, Eastern Europe and Caribbean and Bermuda. By contrast, the remaining two birth subgroups had a significantly higher proportion of students that received *soutien linguistique*: Eastern Asia and especially Southern Asia. As was the case for the target group, the birth subgroups had a proportion of those with *soutien linguistique* that is similar to the proportion of newcomers.

As was already noted in section 2.2.1 when dealing with non-French speakers, very few students enrolled in a private school received (or are reported to have) *soutien linguistique* during their secondary schooling (Table 36c).

Table 36b
Region of birth: *Soutien linguistique* during secondary schooling (public sector), Montreal

Region of birth	No		Yes	
	N	%	N	%
Outside Canada				
All	212	70.9	909	29.1
Subgroups				
West Central Asia and the Middle East	328	74.4	113	25.6
Caribbean and Bermuda	338	73.6	121	26.4
Eastern Europe	176	68.5	81	31.5
Southern Asia	155	45.9	183	54.1
Northern Africa	191	77.0	57	23.0
Eastern Asia	85	50.3	84	49.7
Canada	6,433	99.7	19	0.3

[32] The newcomers may include French-speakers who did not need any *soutien linguistique* but it so happens that the number of French-speaking newcomers was compensated by a similar number of non-French speakers having received *soutien linguistique* in primary school.

Table 36c
Region of birth: *Soutien linguistique* during secondary schooling (private sector), Montreal

Region of birth	No		Yes	
	N	%	N	%
Outside Canada	689	98.6	10	1.4
Canada	3,687	100.0	**	**

** Below 10 students.

4 - School characteristics

Concentration of non-French speakers

Whereas only 1 in 10 Canadian-born students attended a school in which there was a majority of non-French speaking students, close to 2 in 5 (37.3%) foreign-born students did so. There are, however, some suggestive differences across the various birth subgroups. If the proportion of students who attended schools with a majority of non-French speakers was similar to the target group average for the Eastern Europe subgroup, it was lower for the Eastern Asia, Caribbean and Bermuda and Northern Africa subgroups. On the contrary, it was higher for West Central Asia and the Middle East and especially Southern Asia. In other words, 2 in 3 students from Southern Asia were exposed to a student body in which non-French speakers were in the majority.

Table 37a
Region of birth: Concentration of non-French speakers in school attended, Montreal

Region of birth	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Outside Canada								
All	789	20.7	1,606	42.0	737	19.3	688	18.0
Subgroups								
West Central Asia and the Middle East	83	13.7	241	39.7	149	24.5	134	22.1
Caribbean and Bermuda	122	24.7	240	48.7	86	17.4	45	9.1
Eastern Europe	87	22,9	155	40.8	40	10.5	98	25.8
Southern Asia	16	4.7	106	31.2	132	38.8	86	25.3
Northern Africa	88	27.8	149	47.2	51	16.1	28	8.9
Eastern Asia	38	17.5	109	50.2	12	5.5	58	26.7
Canada	5,895	58.1	3,247	32.0	581	5.7	417	4.1

Actually, if 2 in 5 foreign-born students attended a school in which French-speakers were the majority, 1 in 4 attended a school in which the proportion of non-French speakers was over 75%. But interestingly, this target group average conceals two different situations. On the one hand, students from the Northern Africa and the Caribbean and Bermuda subgroups, considered the most francophile of the subgroups here, attended comparatively less a school with more than 75% of non-French speakers. The other four groups exhibited a pattern very similar to that of the whole target group.

As is well known, some private schools may have a significant number of non-French speakers but rarely do they constitute a majority. And thus, it is not surprising (Table 37c) that few Canadian-born as well as foreign-born students attend a school in which non-French speakers were in the majority: respectively, 6.2% and 13.5%. Moreover, if 3 in 4 of the Canadian-born attend a school with less than a quarter of non-French speaking students, it is the case of 2 in 5 of the foreign-born[33].

[33] Students of a given origin tend to congregate in some schools and thus one could expect members of some sub-groups to attend schools with a substantial proportion of students belonging to the same sub-group. According to supplementary analysis not presented here, this is particularly true for West Central Asia and the Middle East (1 in 5 students in this sub-group attends a school in which this sub-group constitutes more than 20% of the student body), the Caribbean and Bermuda (1 in 4 students in this sub-group attends a school in which this sub-group represents more than 15% of the student body, including a non-negligible proportion for whom the foreign-born proportion exceeds 20%) and finally Southern Asia (1 in 5 students attends a school in which their own sub-group represents between 10 and 15% of the student body).

Table 37b
Region of birth: Concentration of non-French speakers in school attended (public sector), Montreal

Region of birth	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Outside Canada								
All	516	16.5	1,274	40.8	691	22.1	640	20.5
Subgroups								
West Central Asia and the Middle East	36	8.2	174	39.5	132	29.9	99	22.4
Caribbean and Bermuda	103	22.4	226	49.2	85	18.5	45	9.8
Eastern Europe	42	16.3	94	36.6	26	10.1	95	37.0
Southern Asia	16	4.7	105	31.1	131	38.8	86	25.4
Northern Africa	64	25.8	110	44.4	49	19.8	25	10.1
Eastern Asia	16	9.5	83	49.1	12	7.1	58	34.3
Canada	3,196	49.5	2,488	38.6	478	7.4	290	4.5

Table 37c
Region of birth: Concentration of non-French speakers in school attended (private sector), Montreal

Region of birth	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Outside Canada	273	39.1	332	47.5	46	6.6	48	6.9
Canada	2,699	73.2	759	20.6	103	2.8	127	3.4

Enrolment in a school identified as socio-economically challenged

Recall that this variable only applies to public schools and thus only one table is shown here (Table 38). According to the figures displayed in this table, attendance of a school identified as socio-economically challenged was barely more frequent in the target group than in the comparison group: 61.7% versus 58.2%. But, among the target group, there were some significant differences by region of birth. Attendance at a school identified as a socio-economically challenged was much lower for those students born in Eastern Europe and Eastern Asia, whereas on the contrary it was much higher for those students born in Southern Asia and

especially the Caribbean and Bermuda. This leaves the students born in West Central Asia and the Middle East and Northern Africa at a level similar to that of the comparison group.

Table 38
Region of birth: School attended identified as socio-economically challenged (public sector), Montreal

Region of birth	No*		Yes**	
	N	%	N	%
Outside Canada				
All	1,195	38.3	1,925	61.7
Subgroups				
West Central Asia and the Middle East	197	44.7	244	55.3
Caribbean and Bermuda	102	22.3	356	77.7
Eastern Europe	163	63.4	94	36.6
Southern Asia	92	27.2	246	72.8
Northern Africa	102	41.1	146	58.9
Eastern Asia	99	58.6	70	41.4
Canada	2,652	41.8	3,685	58.2

* Deciles 1-7 of index in *Québec Agir autrement* ** Deciles 8-10 of index in *Québec Agir autrement.*

2.3.2 Comparative educational pathways and academic performance

1 - Graduation and educational pathways

Let us begin by examining the proportion of students who graduated on time – that is, within 5 years of entering *Secondaire 1* – in the jurisdiction (Montreal) in which they started. As displayed in Table 39a for the two sectors together, students in the target group graduated on time much less frequently than those in the comparison group. If slightly over 1 in 2 of the Canadian-born graduated on time in Montreal, only 2 in 5 of the foreign-born did so. But again, there are some marked differences across the birth subgroups. At one extreme, there were the Southern Asia as well as the Caribbean and Bermuda subgroups in which 1 in 5 members graduated on time in Montreal and, at the other extreme, there was the Eastern Asia subgroup in which 2 in 3 members did so. In between, the remaining three subgroups had a rather similar proportion graduating – around 1 in 2 – which actually is rather similar to that of the comparison group: West Central Asia and the Middle East, Northern Africa and Eastern Europe.

Table 39a
Region of birth: Graduation rates and educational pathways, Montreal

Region of birth	Graduated in Montreal						Still in the system	Graduated in another region		Absent
	On time		1 year after expected		2 years after expected					
	N	%	N	%*	N	%*	N	N	%*	N
Outside Canada										
All	1,536	40.2	366	9.6	164	4.3	134	122	3.0	1,498
Subgroups										
West Central Asia and the Middle East	293	48.3	52	8.6	30	4.9	18	21	3.5	193
Caribbean and Bermuda	110	22.3	54	11.0	31	6.3	30	**	**	263
Eastern Europe	208	54.7	33	8.7	13	3.4	**	22	5,8	97
Southern Asia	67	19.7	40	11.8	21	6.2	**	**	**	199
Northern Africa	158	50.0	33	10.4	11	3.5	11	14	4.4	89
Eastern Asia	133	61.3	17	7.8	**	**	**	**	**	50
Canada	5,415	53.4	705	7.0	287	2.8	301	470	4.6	2,962

** Below 10 students.

Extending the normal 5-year time horizon by 1 or 2 years enabled more students to graduate. One additional year allowed the proportion graduating to rise by 9.6% for the target group but only 7% for the comparison group. Moreover, a second additional year resulted in a further increase of the proportion graduating, again larger for the target group (4.3%) than for the comparison group (2.8%).

In other words, pushing beyond the normal 5-year time horizon suggests that additional years of schooling enable the foreign-born to catch up a bit with the Canadian-born The initial (after 5-year) difference in the proportion graduating (13.2%) is reduced to 10.6% with 1 additional year and further to 9.1% with a second additional year, as 54.1% of the foreign-born graduate in Montreal versus 63.2% of the Canadian-born (see Table 39b).

Table 39b
Region of birth: Cumulative graduation rates, Montreal

Region of birth	Proportion graduating in Montreal		Total graduation rate
	On time	2 years after expected	
Outside Canada			
All	40.2	54.1	57.3
Subgroups			
West Central Asia and the Middle East	48.3	61.8	65.2
Caribbean and Bermuda	22.3	39.6	40.6
Eastern Europe	54.7	66.8	72.6
Southern Asia	19.7	37.6	39.4
Northern Africa	50.0	63.9	68.4
Eastern Asia	61.3	70.5	74.7
Canada	53.4	63.2	67.8

** Below 10 students.

Across the various birth subgroups, the catch up associated with extending the normal time horizon is all the more important that the initial proportion graduating is low. Thus, two additional years increased the proportion graduating of the two subgroups with the lowest initial values by 17-18%, that of the three subgroups with intermediate initial values by 12-13% and that of the subgroup with the highest initial value by 9%. In other words, extending the time horizon from 5 to 7 years caused the range in the proportion graduating to narrow somewhat: from 19.7% to 61.3% after 5 years to 37.6% to 70.6% after 7 years.

Recall that at some point or another some students may move out of Montreal and pursue their secondary schooling elsewhere but still within the province of Quebec where they may graduate. Thus, whereas 4.6% of the Canadian-born may graduate in another region than Montreal within the 7-year time horizon, only 3.2% of the foreign-born did. The latter target group average conceals some differences across subgroups which are linked to the varying magnitude across the various subgroups of the propensity to relocate outside of Montreal. Thus, the proportion graduating in another region was comparatively low for the Caribbean and Bermuda and the Southern Asia subgroups, ands comparatively high for the other four subgroups.

Accounting for graduation outside of Montreal raises the proportion graduating to 57.3% for the target group and to 67.8% for the comparison group, thus increasing slightly the deficit of foreign-born (10.5%).

Across the various subgroups, the total graduation rate (after 7 years inside or outside jurisdiction) varies substantially as it ranges from about 40% for Southern Asia, the Caribbean and Bermuda to more than 70% for Eastern Europe and Eastern Asia. The two other subgroups, however, take on values that are located on the high rather than the low side, between 65.2% for West Central Asia and the Middle East, and 68.4% for Northern Africa.

2 - Type of high school of diploma

As was observed earlier in section 2.2.1.2, few students graduated with a professional diploma (whether in youth or adult education), whereas a lot more graduated with a general education in the adult sector. These results appear again in Table 40 for the two sectors together. First, the proportion of those graduating with a professional diploma stands at 1.6% in the comparison group, it amounts to 0.6% in the target group, an average that applies more or less to all birth subgroups (bearing in mind that the numbers involved here may be small, if not inexistent). Second, whereas 1 in 20 of the Canadian-born graduated in general education but in the adult rather than the youth sector, this is the case of 1 in 10 the foreign-born. But this target group average masks striking variations across the various birth groups. On the one hand, in 4 out of the 6 subgroups, the proportion of those who graduated in general education in the adult sector was similar to the value for the Canadian-born. On the other hand, it was much higher in the case of the Caribbean and Bermuda subgroup and especially the Southern Asia subgroup. A likely explanation is that these students were late in their schooling and thus were forced to move to the adult sector, when they became of age.

Table 40
Region of birth: Type of high school diploma, Montreal

Region of birth	DES youth sector	DES adult sector	DEP professional
Outside Canada			
All	87.8	11.6	0.6
Subgroups			
West Central Asia and the Middle East	90.3	9.3	0.4
Caribbean and Bermuda	83.6	16.4	0.0
Eastern Europe	93.0	7.0	0.0
Southern Asia	72.7	26.5	0.8
Northern Africa	93.6	5.8	0.6
Eastern Asia	93.5	5.7	0.8
Canada	92.0	6.5	1.6

3 - Estimation of outmigration and drop-out rates

Like in the data presentation relating to non-French speakers, some of the students, either present or absent in year 7 did graduate in the 8th year (see Table 41). Under such circumstances, drop-outs may be identified as those students absent in the system in year 7 who did not graduate in year 8, provided that they were still living in Quebec.

Table 41
Region of birth: Estimation of outmigration and drop-out rates, Montreal

Region of birth	Graduated (%)		Outmigrated before reaching 15 years of age (%)	Other according to status in year 7	
	Within 7 years	In year 8		Present (%)	Absent (drop-out) (%)
Outside Canada					
All	57.3	1.3	8.7	3.1	29.7
Subgroups					
West Central Asia and the Middle East	65.2	0.7	9.4	2.8	21.9
Caribbean and Bermuda	40.6	1.8	4.3	5.5	47.9
Eastern Europe	72.6	0.5	5.3	1.6	20.0
Southern Asia	39.4	1.2	15.9	2.1	41.5
Northern Africa	68.4	0.6	6.3	3.5	21.2
Eastern Asia	74.7	0.9	6.0	1.8	16.6
Canada	67.8	1.5	2.0	2.6	26.1

Like for non-French speakers, movers out of Quebec were approximated as the numbers of students who did not appear in our database beyond their 14th birthday. This contained 2.0% of the Canadian-born, and 8.7% of the foreign-born, but the latter value is an average that conceals large disparities across birth subgroups. Less than average for Caribbean and Bermuda, Eastern Europe, Eastern Asia and Northern Africa, it is substantially above average for West Central Asia and the Middle East and especially Southern Asia.

It thus appears that, if migration out of Quebec is accounted for, the drop-out rate for West Central Asia was similar to that of Northern Africa.

4 - Graduation by sector (public vs. private)

Graduation rates after seven years were higher in the private than in the public sector and this held true for both the target and comparison groups. But the advantage of the private sector over the public sector was much less substantial for the foreign-born (67.5% versus 55.0%) than for the Canadian-born (85.1% versus 58.0%) (Table 42). Actually, the advantage of the private sector over the public sector is not a constant across all birth groups. First, let us consider first the groups with at least 100 students enrolled in a private school. While the students in the West Central Asia and the Middle East subgroup graduated more in the private sector than in the public sector but this was not the case for Eastern European students who graduated in similar proportions in the public as well as the private sectors. Second, considering the subgroups with a moderate number of students enrolled in a private school (ranging from 34 to 68), the advantage of the private sector applied to the Caribbean and Bermuda subgroup but it did not to Northern African subgroup for which graduation rate was similar in the two sectors.

Table 42
Region of birth: Graduation by sector (public vs. private), Montreal

Region of birth	After 5 years		After 6 years		After 7 years	
	Public (%)	Private (%)	Public (%)	Private (%)	Public (%)	Private (%)
Outside Canada						
All	38.6	60.1	50.0	65.2	55.0	67.5
Subgroups						
West Central Asia and the Middle East	43.5	68.7	54.6	74.7	61.0	76.5
Caribbean and Bermuda	20.5	58.8	32.0	64.7	38.6	67.6
Eastern Europe	56.0	68.3	67.7	72.4	72.0	74.0
Southern Asia	19.8	**	32.2	**	39.1	**
Northern Africa	53.6	55.9	65.3	63.2	69.0	66.2
Eastern Asia	62.1	70.8	71.0	79.2	72.8	81.3
Canada	44.4	77.7	53.9	83.2	58.0	85.1

** Below 10 observations.

Finally, regarding the differences exhibited by the two sectors with regard to: 1) graduation on time, 2) and extra graduation as a result of the consideration of two additional years - clearly, the private sector did better than the public sector for having students graduate on time. This was somewhat more for the Canadian-born (77.7% versus 44.4%) than for the foreign-born (60.1% versus 38.6%). For both groups, additional years were more beneficial in the public sector than in the private sector. For the foreign-born, one additional year raised the graduation rate by 11.4% in the public sector versus only 5.1% in the private sector. Moreover, a second additional year added 5.0% in the public sector versus only 2.3% in the private sector.

5 - Participation and performance in selected topics

French

Recall that success in a course in the language of instruction is a must for obtaining a secondary diploma, thus one would expect the students that have French as a language of instruction to take the language exam administered by the Ministry in that language and have a mark in French. Moreover, since the language Ministry exam is typically taken toward the very end of attending *Secondaire 5*, the rate of participation to French should resemble the graduation rate or, more

precisely because only a tiny fraction of the students "still alive" at that time was known not to graduate, it should be only slightly higher. Indeed, whereas the participation rate in French was 70.3% versus a graduation rate of 67.8% for the comparison group, it was 58.4% versus 57.3% for the target group (see Table 43 for the two sectors together).

But, participation in French was not higher than graduation for all of the selected birth subgroups considered here. Indeed, participation in French was lower than graduation for Eastern Asia and especially Southern Asia, an observation that is akin to the one made in section 2.2 for Chinese and Tamil speakers. Again, it could be that a non negligible proportion of students in those subgroups have switched to a school in which English was the language of instruction.

Table 43
Region of birth: Participation and performance in French, Sec. 5, Montreal

Region of birth	Participation		Average score
	N	%	
Outside Canada			
All	2,231	58.4	71.2
Subgroups			
West Central Asia and the Middle East	401	66.1	71.6
Caribbean and Bermuda	223	45.2	67.6
Eastern Europe	279	73.4	75.3
Southern Asia	104	30.6	68.4
Northern Africa	228	72.2	72.4
Eastern Asia	158	72.8	73.4
Canada	7,129	70.3	74.1

Next, turning to the average score in French for the two sectors together, it can be seen from table that it is lower by about 3 percentage points for the foreign-born than the Canadian-born (71.2 versus 74.1) and that, among the target group, the higher the participation, the higher the average score. In other words, among the target group, performance in French goes along with the propensity to graduate. For example, the average score in French is 2 to 3 points below the target group average for students born in Southern Asia or the Caribbean and Bermuda and 3 or 4 points higher for students born in Eastern Asia or Eastern Europe.

Math

Just like in section 2.2.2.2, the analysis on participation in mathematics focuses on two complementary aspects:

1) Participation in any mathematics course
2) Selection of a particular course among the three available (as defined previously).

The data called for examining these two aspects appear in Table 45 which was established on the basis of the raw data in Table 44.

First recall that, for the cohort under study, passing a mathematics course in *Secondaire 5* was not a requirement, as it is today, for obtaining a high school diploma and thus, for the reasons already alluded to earlier, we would expect the rate of participation in mathematics to be somewhat lower than the graduation rate. This expectation was verified for the target group (53.6% versus 57.3%) and the comparison group as well (63.7% versus 67.8%). It also holds for 4 of the 6 birth subgroups with a gap between the two rates ranging from 2 (Caribbean and Bermuda) to 7 (Southern Asia) percentage points. Given the comparable result that was obtained in section 2.2 with regard to Chinese speakers, it was not surprising that the exception to this general observation was Eastern Asia. The latter group exhibits a participation rate of 77.9% in mathematics versus a graduation rate of 74.7%, which points to the particularly high attraction exerted by mathematics on students with such origin, including those who stand a comparatively lesser chance to graduate.

Table 44
Region of birth: Participation and performance in Math (raw results), Montreal

Math 514, Sec. 5 (low selectivity)

Region of birth	Participation		Average score
	N	%	
Outside Canada			
All	678	17.7	63.6
Subgroups			
West Central Asia and the Middle East	92	15.2	64.8
Caribbean and Bermuda	128	26.0	61.5
Eastern Europe	48	12.6	66.2
Southern Asia	44	12.9	60.8
Northern Africa	51	16.1	65.7
Eastern Asia	11	5.1	62.8
Canada	1,966	19.4	66.0

Math 526, Sec. 5 (medium selectivity)

Region of birth	Participation		Average score
	N	%	
Outside Canada			
All	280	7.3	62.4
Subgroups			
West Central Asia and the Middle East	50	8.2	62.3
Caribbean and Bermuda	18	3.7	60.6
Eastern Europe	44	11.6	62.8
Southern Asia	**	**	56.8
Northern Africa	33	10.4	61.0
Eastern Asia	14	6.5	65.7
Canada	1,101	10.9	64.7

Math 536, Sec. 5 (high selectivity)

Region of birth	Participation		Average score
	N	%	
Outside Canada			
All	1,090	28.5	73.9
Subgroups			
West Central Asia and the Middle East	227	37.4	73.9
Caribbean and Bermuda	42	8.5	66.1
Eastern Europe	169	44.5	76.0
Southern Asia	57	16.8	70.1
Northern Africa	118	37.3	74.2
Eastern Asia	144	66.4	81.1
Canada	3,389	33.4	73.7

** Below 10 students.

Table 45
Region of birth: Participation in low, medium and high selectivity Math courses, Montreal

Region of birth	Total participation		Decomposition by selectivity		
			Low	Medium	High
	N	%	%	%	%
Outside Canada					
All	2,048	53.6	33.1	13.7	53.2
Subgroups					
West Central Asia and the Middle East	369	60.8	24.9	13.6	61.5
Caribbean and Bermuda	188	38.1	68.1	9.6	22.3
Eastern Europe	261	68.7	18.4	16.9	64.8
Southern Asia	109	32.1	40.4	7.3	52.3
Northern Africa	202	63.9	25.2	16.3	58.4
Eastern Asia	169	77.9	6.5	8.3	85.2
Canada	6,456	63.7	30.5	17.1	52.5

Among the students who had a mark in mathematics, it would appear that about one-half selected the high-selectivity course while only one-third selected the low-selectivity one, thus leaving about 1 in 6 that selected the medium-selectivity course. Such a distribution applies more or less to the target and comparison groups, although the shares of both the low- and high-selectivity courses were slightly higher for the target group than the comparison group. Moreover, within the target group, the decomposition by selectivity exhibits wide fluctuations across birth subgroups with nevertheless a more or less similar proportion associated with the medium-selectivity course (7.3% to 16.9%).

This is to say that the selections of the low- and high-selectivity courses are highly correlated: the higher the share of the high-selectivity course, the lower the share of the low-selectivity course and vice versa. Among the six selected birth subgroups of the target group, four appeared to have low and high-selectivity shares that were in line with the target group average. By contrast, the remaining two subgroups displayed some dramatic differences. At one extreme, students who were born in the Caribbean and Bermuda were much more likely to select the low-selectivity course and, correlatively, much less likely to select the high-selectivity course. On the other, students who were born in Eastern Asia were comparatively less inclined to pick the low-selectivity course and, correlatively, more inclined to pick the high-selectivity course.

In other words, if mathematics appears to exert a special attraction on students born in Eastern Asia, it is mainly the high-selectivity course that exerts such an attraction.

Finally, let us complete our investigations regarding mathematics by looking at the average scores obtained in the low- and high-selectivity course (see Table 44). First, observe that for high-selectivity course the target group barely outperformed the comparative group (73.9 versus 73.7) but the target group average concealed some wide variations across birth subgroups which point to the same division of the six selected subgroups in three categories as the one already substantiated with regard to previous variables. But, there is an interesting nuance concerning Eastern Asians. Although their average score was way above those of the other subgroups, such was not the case for the low-selectivity course where their average score was more in line with those of the bottom two birthplaces: Southern Asia and Caribbean and Bermuda.

Science

Success in Physics 416, a topic taken in *Secondaire 4*, is also a requirement to graduate. Thus, participation in this topic is likely to reflect more or less attainment of *Secondaire 4*. Whereas participation in this topic reached 75.8% for the Canadian-born, it only amounted to 63.3% for the foreign-born (see Table 46). This means that, if the participation rate is 8 points below the graduation rate in the case of the comparison group, it is only 6 points below in the case of the target group. Such a target group average applies, more or less, to the selected birth subgroups with two exceptions. One concerns Caribbean and Bermuda for which participation in Physics 416 was more than 10 percentage points higher than graduation, which illustrates the difficulty for members of this subgroup to go through the later stages of their secondary schooling. The other pertains to Southern Asia for which, on the contrary, the gap between the two indicators considered is just about two percentage points; a finding that points to the resilience of this subgroup members in the later stages of their secondary schooling, thanks in a large part to the strategy, uncovered earlier, of moving, whenever age permits it, to the English adult sector.

Table 46
Region of birth: Participation and performance in Science, Montreal

Physics 416, Sec. 4 (low selectivity)

Region of origin	Participation		Average score
	N	%	
Outside Canada			
All	2,418	63.3	75.0
Subgroups			
West Central Asia and the Middle East	425	70.0	76.1
Caribbean and Bermuda	246	49.9	69.1
Eastern Europe	293	77.1	78.6
Southern Asia	142	41.8	73.1
Northern Africa	234	74.1	75.3
Eastern Asia	171	78.8	85.1
Canada	7,687	75.8	76.1

Science, Sec. 5 (Physics 534 + Chemistry 534) (high selectivity)

Region of birth	Participation		Average score
	N	%	
Outside Canada			
All	950	24.9	75.6
Subgroups			
West Central Asia and the Middle East	188	31.0	75.3
Caribbean and Bermuda	34	6.9	66.7
Eastern Europe	147	38.7	77.3
Southern Asia	54	15.9	72.2
Northern Africa	107	33.9	74.7
Eastern Asia	124	57.1	81.9
Canada	2,591	25.6	76.8

In contrast to the comparison group which registered a 76.1 average score in Physics 416, the target group performed slightly less with a 75.0 average score. But, this target group score conceals some wide variations across birth subgroups. Such variations tend to suggest that, as was the case with some previous topics, performance in this low-selectivity topic goes along with graduation. Southern Asia as well as Caribbean and Bermuda were at the bottom, Eastern Europe and Eastern Asia at the top and thus Northern Africa as well as West Central Asia and the Middle East in between. Obviously, as its score is higher by as much as 7 to 8 points than the score of the second best subgroup, the Eastern Asia subgroup enjoyed a comparative advantage in science.

Turning to Science in *Secondaire 5*, a high-selectivity topic, it would appear that about 1 in 4 students took it, 24.9% of the target group and 25.6% of the comparison group. But the target group average masks some wide variations across birth subgroups. Whereas participation in high-selectivity science was above average in 4 out of the 6 selected subgroups – West Central Asia and Middle East, Northern Africa, Eastern Europe and especially Eastern Asia – it was particularly low in the remaining two subgroups: Southern Asia and especially the Caribbean and Bermuda. Obviously, such disparities are not anything new, for they once again point toward the division of the 6 selected birth regions in the 3 categories already encountered in various occasions.

2.4 CONCLUSIONS AND POLICY IMPLICATIONS

This section describes the main findings of the our analysis of how the youth of immigrant origin move forward and perform in Quebec's secondary school system. It also describes the conclusions we have drawn from these findings that could be used to support the decisions that school policymakers at the local and provincial levels must make on a daily basis.

We begin by highlighting our observations stemming from the two data presentations on the basis of language and birthplace and from the regression analysis.

1 - Observations linked to the data presentation

Our first observation is related to the initial characteristics of the youth of immigrant origin. When compared with French speakers, non-French speakers were found, overall, to have less positive characteristics. In particular, they live in less affluent areas, they are more often late entering *Secondaire 1*, and they attend schools with a comparatively higher proportion of non-French speakers. Moreover, in comparison with the Canadian-born, the foreign-born were shown to have even less positive characteristics.

There are, however, some striking differences across language and birth subgroups in the characteristics exhibited by the youth of immigrant origin. In some groups, such as the Creole speakers, the various characteristics or risk factors play in the same direction. But most often, these characteristics play in opposite directions. Let us recall for example the Chinese speakers who lived in comparatively less affluent areas but attended private schools more frequently. In other words, for neither home language nor birthplace does there appear to be a clear ranking order for the various subgroups that would make it possible at the outset to predict specific educational outcomes.

More meaningful differences than those substantiated between subgroups were found between the two types of school systems (public and private), a result of the differences noted in the composition of the student populations attending each sector.

Our second observation is about overall academic performance. Basically, non-French speakers do not perform as well as French speakers, and the same applies even more to foreign-born

students in comparison with Canadian born students. Such an observation holds true for most of the criteria used to assess academic performance – graduation on time, graduation two years after expected, scores in some (not all) subjects[34] – but not for participation in selective courses leading to a natural/health sciences programme in CEGEP. However, in contrast with the differences substantiated earlier in the characteristics of non-French speakers versus French speakers and of the foreign-born versus the Canadian-born, the corresponding differences in performance are not marked.

Our third observation concerns disparities in performance. There is an observed order for both the language and birth subgroups. At one extreme, there is an underachieving group (Creole speakers); at the other, overachieving groups (Romanian, Vietnamese and Chinese speakers); and in between are lower than average subgroups (Spanish and Portuguese speakers) and about average subgroups (Arabic and Persian speakers). Nevertheless, no clear relationship appears to emerge between these disparities in performance and those noted earlier in the characteristics of the various subgroups.

At the same time, our analysis of academic performance supports the premise that attending a private rather than a public school makes a huge difference. However, the graduation bonus associated with attending a private school is notably lower for the foreign-born than for the Canadian-born.

2 - Observations linked to the regression analysis

This analysis, which was only conducted for home language, more or less confirms the results of the descriptive analysis, and also enables us to better assess the impact of specific factors related to performance.

Controlling for the characteristics of the target and comparison groups provided the basis for our fourth observation. Non-French speakers appeared to perform better than French-speakers with respect to graduation rates (odds ratio of 1.39) and with the choice of selective course (odds ratio of 1.49).

[34] As could be expected from the international literature, immigrant origin students have higher scores in subjects such as mathematics and sciences than in the language of instruction.

Our next observation is based on controlling for student characteristics of students at the level of the language subgroups. In brief, the differences noted earlier between the five language subgroups kept in the regression analysis were confirmed. However, all five subgroups improved their respective positions compared to the comparison group. For graduation rates, the Vietnamese and Chinese subgroups exhibited particularly high odds ratios: respectively, 2.99 and 4.08. Moreover, the Arabic subgroup which was shown to enjoy a 4 percentage point graduation advantage exhibited an odds ratio of 1.96, whereas the Spanish subgroup which had a 13 percentage point deficit and the Creole subgroup which had a 26 percentage point deficit exhibited odds ratios of 1.00 and 0.70 respectively. These intergroup differences applied to participation in selective courses although the Creole subgroup did not come as close to the comparison group.

Our final observation is based on the factors that influence two indicators of performance: graduation two years after expected and choice of selective courses. Overall, these results illuminate the various theories mentioned earlier. First of all, membership in a particular language subgroup was highly significant. As discussed in section 1.2, this finding can be interpreted in several ways. It could be an effect of the differences in values and strategies within the families and communities or linked to the attitudes of teachers and their valorization of different language groups or culture. In fact, only the pursuit of a qualitative approach would enable one to better understand what is at work here.

Among the socio-demographic factors, which according to the literature have been proven to influence academic performance, only gender appeared to be significant in the case of the target group. The other two variables, a socio-economic variable reflecting median family income and a variable reflecting birth outside Canada were not significant. These three variables, however, were all significant in the case of the comparison group.

The non-significance for non-French speakers of the socio-economic variable could be perceived as either a confirmation of the positive impact of migrating to a new country or a manifestation of the weakness of the proxy used. Recall that this proxy does not pertain to the student's family,

but rather to the neighbourhood in which his or her family lives[35]. In a context in which descending social mobility is plausible, it is possible that allophone families have better social capital than the other families in their area of residence. In fact, such a possibility is corroborated by the differing impact of attending a socio-economically challenged school on the target group (not significant) and on the comparison group (significant).

The schooling process variables, which were somehow linked to pre-migration characteristics, at least in the case of students born abroad, proved to be significant for non-French speakers with, an exception for level of entry into the school system. As might be expected, entering late into *Secondaire 1*, changing schools, and receiving *soutien linguistique* during secondary schooling had a negative impact on graduation.

Finally, some of the variables associated with the school attended were shown to have some impact, such as attendance at a private rather than public school and, to a lesser extent, the proportion of non-French speakers (above a critical value of 75%), but there is no way of saying how this result might be linked to the practices in operation in each school.

3 - Policy implications

Several implications can be drawn from our data for improving policies and programmes at either the provincial or the local level. First, it must be emphasized that in Montreal the students who were not French speakers or who were born outside Canada did not constitute, in the secondary school system, a group that was *a priori* at risk, even though the educational outcomes of foreign-born students are less positive than those of non-French speakers[36].

Thus, it would appear that most initiatives targeting immigrant origin students should clearly address the differences we encountered between language and place of birth subgroups, and take into account some of the factors pertaining to students and school characteristics that were found to have a negative impact.

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[35] In this regard, see some recommendations for better data collection across the various Canadian educational authorities in section 5.2.

[36] This could indicate that compensatory school programmes and initiatives at the primary school level, whether aiming at the full student body or specifically aiming at non-French speakers, have overall a positive impact.

On the one hand, it is worth mentioning that the most *at-risk* subgroups, even after controlling for their initial characteristics in the scope of our study, traced their origin to a Third World country and/or for the large part, came to Canada in the context of humanitarian movements. Among those subgroups, the Creole and Spanish speakers were the largest. Thus approaches that address their needs should be developed and further research should be carried to assert the respective validity of different explanations in this regard.

On the other hand, if one was to develop a profile of the typically *at-risk* immigrant origin student, it would be that of a boy entering *Secondaire 1* one year late, still needing *soutien linguistique,* and attending a public school where the proportion of non-French speakers is higher than 75%. Like other students who do not speak French at home or who are born outside Canada, such a student would certainly better his performance if his schooling were extended from the normal five years to seven years, as suggested by the results of our study. In this regard, the current school reform, which puts an emphasis on cycles – that is, how students move forward in the system – rather than on a normative relationship between age and level appears to go into the right direction.

Another interesting finding was that attending a socio-economically challenged school had little influence on the academic performance of either non-French speakers or foreign-born students (whereas it had a large influence on the corresponding comparison groups). From this, we might conclude that the relevance of this indicator in a multiethnic context is doubtful. Indeed, because this indicator is used to allocate additional funding to inner-city schools, it would be important to establish whether it is adapted to the specific need of *milieus* who are at the same time underprivileged and multiethnic.

Beyond these recommendations addressed to the provincial authorities, others may be better suited for local or community action, especially those that concern the differences between language and region of birth subgroups, the importance of the variance between schools, even after their student's composition is accounted for, as well as the significant advantage of private schools compared with public schools, here again even after accounting for differences in initial characteristics. Indeed, we need to better understand, either through the realization of qualitative studies or the involvement of the schools and the communities themselves, the factors that are

responsible for such differences with a view toward setting forth practical and concrete actions rather than general programs.

Finally, because the low graduation rate of all students in the French sector has become an important topic of public debate in Quebec, it would be relevant to better understand the educational values, cultural capital and family strategies that may explain the positive performance of non-French-speakers or foreign-born students, and especially of some of their subgroups, when compared to French-speakers or Canadian-born students. In this respect, the higher propensity of the two target groups to choose highly selective courses that permit access to science programme in CEGEPs and in universities should especially be scrutinized.

CHAPTER 3

TORONTO SITE REPORT*

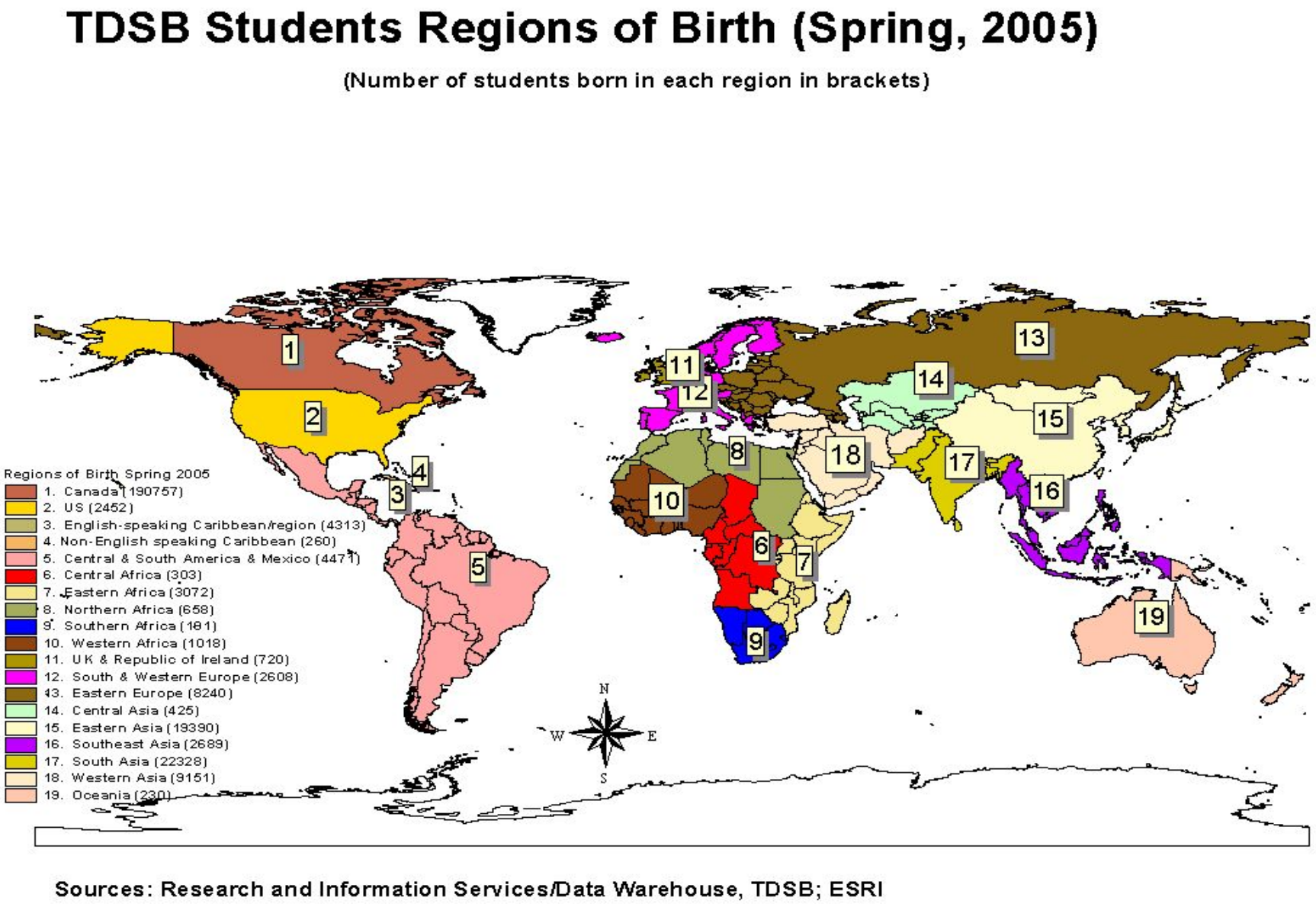
* Written by Robert Sweet with the collaboration of other the Toronto team members.

3.1 INTRODUCTION

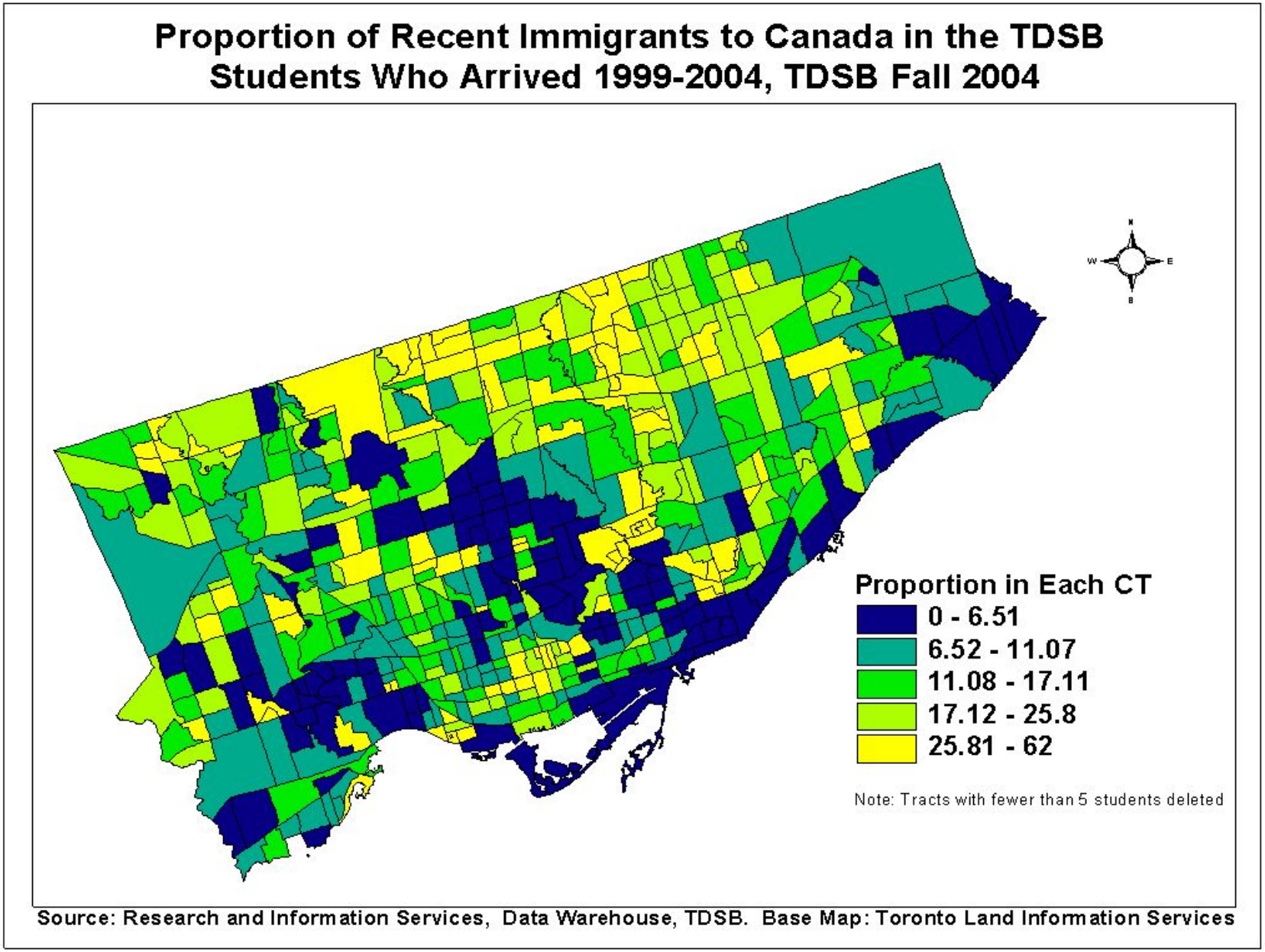
3.1.1 Context

The Toronto District School Board (TDSB), like any organization that serves the community, is confronted by the changing nature of Toronto. Demographics and evolving social realities continually alter the city. These realities include the population of Toronto, the ages of its citizens, birth rates, immigration, income and poverty levels, the labour force, residential development, the support for and aspirations of the children that live within the boundaries of the TDSB. Some key facts to bear in mind with regard to the impact of immigration are that, while roughly 17% of Canada's population is made up of immigrants, that figure is over 47% in Toronto. More recent analyses of the student population in the TDSB (Yau & O'Reilly, 2007) show that 30% of grade 7-8 students were born outside Canada and 42% of grade 9-12 students were born outside the country. However, the proportion of parents of grade 7-12 students who were born outside Canada is much higher – families in which both parent are foreign-born account for 71% of the total; and this figure rises to 80% if families in which only one parent is foreign-born are included. This indicates the extremely large number of second-generation students in the TDSB. Given the non-European background of most recent immigrants these figures also indicate the very diverse nature of TDSB schools.

The following map shows the number of TDSB students in various regions of birth:



The next map displays the location of recently arrived immigrants within the boundaries of the TDSB, within various census tracts:



The TDSB is one of two major boards serving Metro Toronto. The other is the Toronto Catholic District School Board (TCDSB). The following layout compares basic features of each board.

TDSB/TCDSB Comparison			
Toronto DSB's	Basic Features		
	Schools*	Enrolments	Teachers
TDSB Elementary	451	181,000	10,000
TDSB Secondary	104	89,000	5,700
TCDSB Elementary	168	61,390	5,997**
TCSB Secondary	33	30,402	
* TCDSB includes two combined elementary-secondary schools ** TCDSB combined elementary and secondary teaching staff; excludes administration and support staff)			

The TDSB is both a large and diverse school district that has undergone considerable demographic change throughout its history. These changes have been documented in a series of district studies that provide an historical view of one of Canada's major urban centres.

3.1.2 Related studies

Applied research in Toronto public education dates back to its foundation in the early 19th century, when the key motivator was to decrease the absenteeism among students. By the mid to late 20th century, the emphasis on accountability through absenteeism had disappeared, and the focus had shifted to graduation from high school (or its inverse, dropping out), improving student achievement, and the placement of students into academic 'streams' differentiating those going into university, from those going directly into the workplace.

In the 1960's, the seven Toronto boards (Metro, North York, Toronto, Scarborough, Etobicoke, East York and York) established research departments. One key theme of research became the composition and achievement patterns of new immigrant groups who were entering Toronto in the 1950's through the 1970's. The Every Student Surveys of the Toronto Board in the 1970's clearly outlined the socio-economic patterns of streaming. For example, according to the 1970 Every Student Survey, only 24% of grade 8 students from low-income Park school went onto five year high school programs, compared to 95% from Deer Park PS in the more affluent northern part of the city. The surveys also outlined the challenges of immigrant populations in Toronto (Stamp, 1981). Cohort studies of grade 9 students have been conducted periodically

since the 1959 Toronto grade 9 cohort (Wright, 1967). Grade 9 students who had participated in the 1987 Every Secondary Student Survey were followed for five years. By the end of 1992, 56% had graduated, 11% were still in the Toronto board for a sixth year, while 33% had dropped out. There was little difference between those born in Canada and those born outside Canada. However, there were clear distinctions between other subgroups of students. The dropout rate of Black students (42%) was more than twice that of Asian students (18%) with White students in between (31%). The dropout rate of key language groups also varied widely: that of English-only was marginally above the Toronto total (37%) but other groups varied from Chinese (19%) to Portuguese (41%). The dropout rate of those living with one parent was almost twice that of those living with two parents (48% versus 27%) and the dropout rate of students from non-remunerative households was thrice that of those whose parents worked in professional occupations (46% to 15%). Likewise, the dropout rate of those in the Basic stream of study leading directly to the workplace was thrice that of the majority of students who were in the Academic stream which lead to university (21% versus 64%).

This study also clearly established an almost linear relationship between the pattern of credit completion in grades 9 and 10, and graduation-dropout by the end of year 5 of secondary study, first suggested by King *et al*. (1988). The vast majority of students who completed all 8 mandatory credits by the end of grade 9 had graduated by the end of five years. By contrast, most students with 6 credits or fewer by the end of grade 9 had not graduated by the end of five years. A similar relationship was found for grade 10 (year 2) where almost all students who had completed the 'norm' of 16 or more credits by the end of grade 10 had graduated, while most of those with 14 or fewer credits had not (Brown, 1993).

The Every Secondary Student Survey of 1991 was another landmark series of studies. In an examination of achievement (Yau *et al.* 1993) there were similar demographic patterns to the 1987 Survey. In addition, links were very clearly established with hours of homework per week, hours of part-time work per week, and a very strong link of attitudes towards post-secondary education (both by the student and the students' parents). A later cohort study of the 1991 grade 9 students confirmed these links, along with the earlier demographic relationships: although the dropout rate itself had declined dramatically in five years, from 33% to 23%, the relationships between subgroups remained (Brown, 1997). The patterns of grade 9 and 10 credit completion

were also confirmed by this cohort study and by a comparable cohort study done by the Scarborough Board's research department (Turner, 1997). Monitoring of grade 9 and 10 credit completion has since become part of Ontario educational planning.

In 1998, the six component areas of Metropolitan Toronto were amalgamated into the new City of Toronto. This led to a broader examination of much larger groups of students – e.g. the total number of secondary study in the amalgamated Toronto District School Board was three to four times the size of the old Toronto Board, despite an overall decline in enrolment and the removal of tens of thousands of adult students. By 2000-2001, the amalgamated research department had established the Student Success Indicators to examine annual outcomes of secondary students. An analysis of five years of data in 2006 documented a 'modest but consistent increase in student achievement', such as a decline in the proportion of grade 9 students who had fewer than 6 credits, and those who had not completed compulsory Math, English, and Science courses. A noticeable increase in the proportion of students applying to, and accepted into, university was also observed.

At the same time, many of the achievement gaps profiled in earlier reports were also identified:

- a consistent gap between higher achieving female and lower achieving male students;
- higher-achieving age-appropriate and lower achieving older students;
- higher achieving students who stayed in the same secondary school versus those lower-achieving students who switched schools;
- higher achieving high income neighbourhoods and lower-achieving low-income neighbourhoods;
- those with normal or high achievement in elementary school, who in general achieved normal-higher achievement in secondary grades, versus those who were at risk in elementary school and were also more at risk in secondary;
- those taking a majority of courses in the Academic program of study versus a much more at-risk population taking Applied and Essentials courses (these had replaced the Advanced, General and Basic streams in Ontario, with little obvious effect);
- those with low grade 9 and 10 absenteeism with higher achievement, and those with high grade 9 and 10 absenteeism, and lower achievement.

As with previous studies, few differences between those born in Canada versus those born outside Canada were identified. However, this gross comparison served to conceal significant variations among students born outside Canada. Those born in the English-speaking Caribbean, Central/South America/Mexico, and Eastern African were more highly at-risk, while those born in Eastern Europe, Southern Asia, and Eastern Asian tended to be less at-risk. Year of arrival in Canada did not appear to have made an obvious difference. The grade 9 achievement of 21 key languages was examined, and found that the groups with the highest at-risk status in both 2003-2004 and 2004-2005 were Spanish, Portuguese, and Somali (Brown, 2006).

3.2 EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF NON-ENGLISH SPEAKERS

3.2.1 Descriptive data presentation

The Toronto cohort numbered 16,019 students who, in 2000, entered grade 9 in the TDSB. Of these, 6,370 (40%) indicated the first language spoken in their home was not English. This group then comprised the 'target group' in our study. The remaining 9,649 students were designated the 'comparison' or 'reference' group.

Among the target group, Chinese-speakers were the most numerous (23%) followed by the two South Asian languages of Tamil (9%) and Urdu (6%). Russian speakers and Persian speakers accounted for 6% and 5% of the target group, respectively. Together these five groups make up approximately half the target group. The remaining non-English speaking language groups consisted of Spanish (4%), Vietnamese (4%), Arabic (2%), Portuguese (2%), and Somali (4%).

3.2.1.1 Characteristics of the target and comparison groups and of subgroups

In this section we organize the discussion of tables into three sub-topics: social structures and personal characteristics, risk factors and school context. These correspond to the three categories of socio-demographic characteristics, schooling process variables and school characteristics used in the two other sites reports.

1 - Social structures and personal characteristics

The following set of tables describe basic social structural features and personal characteristics of the various language group members. Table 47 shows that, by high school, there was more gender variation in enrolment among non-English speakers. Assuming gender balance at entry, the male-female differences at graduation provides some indication of the importance of socialization influences on retention through the school years. The economic situation of students' families is indicated by income (Table 48). The information in this table raises the issue of declining incomes among recent immigrants and the implication (in extreme cases) that 'living in poverty' has a detrimental effect on immigrant children's well-being. The most recent research suggests income convergence with the native-born is indeed difficult to achieve but that relatively few children of immigrants spend long periods of time (3 years) in poverty or, more specifically, living below Statistic's Canada Low Income Cut-Off (LICO) measure. In Table 49, we included a cross-tabulation of language groups with immigrant status to indicate the significant growth in Toronto's immigrant school-age population as well as the linguistic diversity of recent immigrants. Linguistic diversity is apparent also among a significant number of children who were born in Canada. Many, perhaps most, of these individuals will be second generation immigrants.

Gender

In Table 47, we examined variations in gender across non-English speakers and English speakers. We found that while approximately 48% of non-English speakers were female, which is a very close percentage with that of English speakers, there are gender variations across our 10 subgroups, ranging from 57% of Vietnamese and 51% of Persian being female to approximately 43%-44% of Portuguese and Arabic speakers being female.

Table 47
Language used at home: Gender, Toronto

Language used at home	Male		Female	
	N	%	N	%
Non-English Speakers				
All	3,334	52.3	3,036	47.7
Subgroups				
Chinese	780	54.2	659	45.8
Tamil	312	52.0	288	48.0
Urdu	188	52.2	172	47.8
Russian	185	50.5	181	49.5
Persian	143	48.8	150	51.2
Spanish	135	53.1	119	46.9
Vietnamese	102	43.2	134	56.8
Arabic	71	56.3	55	43.7
Portuguese	76	56.7	58	43.3
Somali	120	51.9	111	48.1
English Speakers	4,977	51.6	4,672	48.4

Socio-economic status

As described in section 1.3.1.1, postal codes for students were matched with dissemination area (DA) level information in the 2001 Census with regard to median family income of families and then median family income was broken down into quintiles and applied to each of our 10 non-English subgroups. In examining the lowest median-income category (quintile) displayed in Table 48, almost 27% of all subgroups fell within this lowest income group; this contrasts with 15% of all English speakers who fell into this lowest income group. In examining the language subgroups, we found that Somali's, Tamils and Vietnamese were disproportionately represented in the lowest income group while the Chinese and Portuguese were underrepresented. In fact, these language groups were similar to English speakers.

Table 48
Language used at home: Median family income in EA of residence, Toronto

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-English Speakers										
All	1,644	26.7	1,551	25.2	1,354	22.0	952	15.5	647	10.5
Subgroups										
Chinese	220	15.7	283	20.2	356	25.5	310	22.2	229	16.4
Tamil	239	41.1	143	24.6	132	22.7	55	9.5	12	2.1
Urdu	132	37.8	115	33.0	64	18.3	27	7.7	11	3.2
Russian	81	22.8	128	36.1	64	18.0	42	11.8	40	11.3
Persian	65	23.3	91	32.6	51	18.3	42	15.1	30	10.8
Spanish	73	29.7	57	23.2	60	24.4	34	13.8	22	8.9
Vietnamese	93	41.3	51	22.7	42	18.7	32	14.2	**	**
Arabic	24	20.2	45	37.8	23	19.3	18	15.1	**	**
Portuguese	22	16.7	42	31.8	40	30.3	19	14.4	**	**
Somali	94	43.5	69	31.9	35	16.2	**	**	11	5.1
English Speakers	1,393	14.9	1,460	15.6	1,928	20.6	2075	22.1	2,521	26.9

** Below 10 students.

Birth place

Table 49 shows that among children in the TDSB who spoke a language other than English in the home, some 74% were foreign-born. Among these (first-generation) immigrant children, 75% spoke a language other than English in the home. Among non-English speakers, Chinese, Spanish, Vietnamese, and Portuguese groups had the highest proportion of children born in Canada, ranging from 43% to 62%. These represent the more established immigrant groups. In contrast, Somali, Russian, Persian and Tamil groups were more recent arrivals – all of whom had less than 8% born in Canada. Among Somali-speaking children, virtually none were born in Canada.

Table 49
Language used at home: Birth place, Toronto

Language used at home	Born in Canada		Born outside Canada	
	N	%	N	%
Non-English Speakers				
All	1,565	26.2	4,405	73.8
Subgroups				
Chinese	484	34.1	935	65.9
Tamil	35	5.9	557	94.1
Urdu	56	16.0	295	84.0
Russian	10	2.9	338	97.1
Persian	22	8.1	249	91.9
Spanish	90	43.5	117	56.5
Vietnamese	121	51.5	114	48.5
Arabic	20	19.0	85	81.0
Portuguese	81	61.8	50	97.3
Somali	**	**	213	97.3
English Speakers	8,016	84.3	1,489	15.7

** Below 10 students.

2 - Risk factors

The following tables describe various risk factors associated with membership in the TDSB language groups selected. Table 50 describes the age at which students entered high school. Being older than the modal age upon entry to grade 9 in the TDSB was not necessarily a function of late arrival and registration but of cumulative disadvantages while in the elementary system. Some of the delay during this period likely reflects the time required to become proficient in the language of classroom instruction. As such, being one year late in entry to secondary school is seen as a risk factor for eventual graduation. Table 51 examines the origins of the various groups at high school entry. This refers to whether they transferred directly from the TDSB elementary system, transferred from another Canadian school system, or entered after arrival from another country. Entering from within the TDSB system is assumed to indicate a degree of institutional continuity and stability in the progression to high school. The frequency with which students changed schools during their secondary schooling (Table 51) suggests greater mobility among

recently arrived immigrants, likely associated with the settlement process. While most children are adaptable to change, too much mobility introduces uncertainty and disrupts study patterns and habits. Finally, we included a table that describes involvement in ESL instruction at the secondary level (Table 52). Acquiring facility with the English language is a priority among recent arrivals and reaching a level of language competence that allows one to study effectively takes time. For those who have a language limitation, their academic studies and progress are placed at risk.

Age when entering high school

Our analysis of non-English speakers shown in Table 50 reveals that approximately 8% entered one year late and that there were variations among subgroups. Thus, Chinese, Tamil and Vietnamese students were less likely to enter late (all groups being under 6%) while Somali students were most likely (12.6%). It should be noted that the Spanish speaking students and Arabic speaking students were also relatively more likely to enter late.

Table 50
Language used at home: Age when entering high school, Toronto

Language used at home	Early		On time		1 year late	
	N	%	N	%	N	%
Non-English Speakers						
All	82	1.3	5,813	91.3	475	7.5
Subgroups						
Chinese	13	0.9	1,344	93.4	82	5.7
Tamil	**	**	559	93.2	35	5.8
Urdu	**	**	326	90.6	25	6.9
Russian	**	**	341	93.2	24	6.6
Persian	**	**	264	90.1	24	8.2
Spanish	**	**	231	90.9	23	9.1
Vietnamese	**	**	220	93.2	14	5.9
Arabic	**	**	110	87.3	11	8.7
Portuguese	**	**	123	91.8	11	8.2
Somali	**	**	197	85.3	29	12.6
English Speakers	104	1.1	8,974	93.0	571	5.9

** Below 10 students.

Level of entry into the school system

Table 51 indicates that while some 80% of students entered the TDSB from elementary schools within the TDSB, the remaining 20% entered either from another Canadian jurisdiction or as immigrants. Some 11% of the total enrolment is identifiable as being of immigrant origin. Of those entering from other Canadian jurisdictions, an unknown proportion would also be immigrants. For example, in Table 49, no Somali children were born in Canada but in Table 51, some 75% of newcomer Somalis came from another Canadian jurisdiction.

Table 51
Language used at home: Level of entry into the school system, Toronto

Language used at home	In TDSB elementary		Newcomers from inside Canada		Newcomers from outside Canada	
	N	%	N	%	N	%
Non-English Speakers						
All	5,071	79.6	691	10.8	608	9.5
Subgroups						
Chinese	1,247	86.7	94	6.5	98	6.8
Tamil	532	88.7	42	7.0	26	4.3
Urdu	267	74.2	34	9.4	59	16.4
Russian	272	74.3	40	10.9	54	14.8
Persian	239	81.6	23	7.8	31	10.6
Spanish	193	76.0	47	18.5	14	5.5
Vietnamese	202	85.6	31	13.1	**	**
Arabic	93	73.8	12	9.5	21	16.7
Portuguese	97	72.4	31	23.1	**	**
Somali	183	79.2	36	15.6	12	5.2
English Speakers	7,875	81.6	1668	17.3	106	1.1

** Below 10 students.

Comparing English and non-English speakers, we found the proportions of English and non-English speakers who transitioned directly from the elementary system to be essentially the same (80%). There are four non-English speaking groups with a relatively high proportion of newcomers – Urdu, Spanish, Arabic and Portuguese. These groups vary in their origins – either from within or outside Canada. We observed that those transferring from another Canadian jurisdiction included a high proportion of Portuguese newcomers (23.1%) and Spanish

newcomers (18.5%) while among Arabic and Urdu speaking newcomers, some 16% in each group came from outside Canada.

Frequency of school changes (within 4 years of entering grade 8)

It is interesting to note from Table 52 that a greater proportion of non-English speakers (31%) than English speakers (24%) experienced mobility during their high school career, making one or more school shifts. We found that the Persian, the Arabic and the Russian groups were the most likely non English speaking groups that made one or more schools changes. In contrast, less than one-quarter of the Portuguese and Tamil students made one or more school changes.

Table 52
Language used at home: Frequency of school changes (within 4 years of entering grade 8), Toronto

Language used at home	No school change		One or more school changes	
	N	%	N	%
Non-English Speakers				
All	5,112	80.6	1,277	19,4
Subgroups				
Chinese	1,220	85.1	214	14.9
Tamil	480	80.5	116	19.5
Urdu	286	79.7	73	20.3
Russian	299	82.4	64	17.6
Persian	203	69.8	88	30.2
Spanish	192	76.2	60	23.8
Vietnamese	184	78.6	50	21.4
Arabic	87	69.0	39	31.0
Portuguese	108	80.6	26	19.4
Somali	163	71.2	26	28.8
English Speakers	7,760	80.7	1,858	19.3

ESL-ELD courses in high school

While the participation of students in English as a second language/English literacy development courses (ESL-ELD) is most likely higher at the elementary than at the secondary level, we were unable to determine involvement of non-English speakers in such courses at the elementary level. However, Table 53 provides data on students who completed at least one ESL-ESD courses or half-courses in the TDSB secondary panel. It shows that 19.1% of all non-English speakers were enrolled in ESL-ELD courses in grade 9. In addition, there was some variation in participation among non- English speaking groups. Thus, the Persian, Russian group and Urdu groups were most likely to participate in ESL-ELD courses while the Vietnamese and Portuguese were least likely.

Table 53
Language used at home: ESL-ELD courses in high school, Toronto

Language used at home	Yes		No	
	N	%	N	%
Non-English Speakers				
All	1,215	19.1	5,155	80.9
Subgroups				
Chinese	285	19.8	1,154	80.2
Tamil	123	20.5	477	79.5
Urdu	86	23.9	274	76.1
Russian	92	25.1	274	74.9
Persian	83	28.3	210	71.7
Spanish	27	10.6	227	89.4
Vietnamese	8	3.4	228	96.6
Arabic	27	21.4	99	78.6
Portuguese	12	9.0	122	91.0
Somali	29	12.6	202	87.4
English Speakers	201	2.1	9,448	97.9

3 - School context

The following tables describe school context factors. Table 54 shows the attendance of each language group in schools that vary in their concentration of non-English speakers. Schools ranged from 0-25% non-English speakers to schools with 76-100% non-English speakers. Schools also vary in the socio-economic resources their students possess or to which they have access. To assess this, we employed the TDSB Learning Opportunities Index (LOI) that aggregates several measures of family social and economic capital including income, family structure (single-parent families), housing type, level of parental education and immigrant status. We assume schools with high concentrations of non-English speakers would have a more difficult instructional task and children attending schools with a low Learning Opportunity Index will not benefit from the peer effects conferred by a student body that possesses both social and economic resources. Positioning each language group in our study along both language and socioeconomic dimensions of schools allows us to gauge the relative advantage obtained by the members of these groups.

Concentration of non-English speakers

The majority of all non-English speakers were located in schools with a concentration of 50-75% non-English speakers (53.8%). This contrasts with 38.2% of English speakers being located in these schools. Also within this category of schools we find a range among non-English speakers, from a low of 46.1% for Russian and a high of 71.4% for the Portuguese student group. In the highest concentration category (76-100%), we also found large differences among the 17.5% non-English speaking students – varying from none for Portuguese to a high of 27.3% for Arabic students. Relatively few non-English speaking students were enrolled in schools that enrolled primarily English-speaking students – those with non-English concentrations of from 0-25%.

Table 54
Language used at home: Concentration of non-English speakers in school attended, Toronto

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-English Speakers								
All	330	5.3	1,451	23.5	3,325	53.8	1,080	17.5
Subgroups								
Chinese	51	3.6	229	16.2	770	54.5	362	25.6
Tamil	17	2.9	88	14.9	365	62.0	119	20.2
Urdu	**	**	80	23.2	169	49.0	89	25.8
Russian	21	5.9	87	24.3	165	46.1	85	23.7
Persian	13	4.5	56	19.4	146	50.7	73	25.3
Spanish	27	10.7	78	31.0	132	52.4	15	6.0
Vietnamese	**	**	51	22.1	175	75.8	**	**
Arabic	**	**	27	22.3	57	47.1	33	27.3
Portuguese	**	**	32	24.1	95	71.4	**	**
Somali	22	9.6	44	19.1	150	65.2	14	6.1
English Speakers	1,640	17.2	3,489	36.6	3,641	38.2	763	8.0

** Below 10 students.

External challenge of the school[1]

When we examined schools facing the highest external challenge, we see in Table 55 that a much higher percentage of English-speakers (29%) than non-English speakers (175) were enrolled in schools attended by students from the more advantaged backgrounds. Conversely, 24% of all non-English students were enrolled in high challenge schools. Of our 10 non-English speaker groups, the highest proportions participating in high challenge schools were the Vietnamese, Somali and Portuguese. In contrast, less of Chinese and Tamil students were enrolled in high external challenge schools.

[1] Since the 1960s, the City of Toronto school boards have allocated funding to schools based on social and economic characteristics of their school population. The Learning Opportunity Index (LOI) was developed in 1999. It looks at 'external challenge' faced by the schools. Variables are calculated in the same way for all 472 elementary schools and 111 secondary schools over multiple years. In 2006-2007, the LOI variables were: average and median income of families with school-aged children; parental education; proportion of lone-parent families; housing type (apartment, single detached housing); recent immigrant; student mobility.

Table 55
Language used at home: External challenge of school attended, Toronto

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-English Speakers										
All	1,029	16.6	1,155	18.7	1,537	24.8	982	15.9	1,483	24.0
Subgroups										
Chinese	320	22.7	388	27.5	370	26.2	139	9.8	195	13.8
Tamil	14	2.4	161	27.3	163	27.7	122	20.7	129	21.9
Urdu	15	4.3	55	15.9	75	21.7	80	23.2	120	34.8
Russian	90	25.1	56	15.6	100	27.9	12	3.4	100	27.9
Persian	55	19.1	50	17.4	71	24.7	50	17.4	62	21.5
Spanish	30	11.9	20	7.9	64	25.4	62	24.6	76	30.2
Vietnamese	**	**	10	4.3	37	16.0	57	24.7	118	51.1
Arabic	10	8.3	18	14.9	38	31.4	25	20.7	30	24.8
Portuguese	11	8.3	**	**	16	12.0	47	35.3	53	39.8
Somali	**	**	16	7.0	53	23.0	60	26.1	94	40.9
English Speakers	2,794	29.3	2,156	22.6	2,220	23.3	1,426	15.0	937	9.8

** Below 10 students.

3.2.2.1 Comparative educational pathways and academic performance

In this section we describe the academic performance of the various language groups. Table 56 includes graduation rates across three time periods – 4 years, 5 years and 6 years. Year 4 is considered to be the modal time period needed to graduate. We also compare dropout rates among the various groups. Our description traces trends in completion across the language groups. We contrast this with comments on the (cumulative) profile of dropouts. We include counts and proportions of those who remained in school after year 6 and those who had transferred out of the system. These are used to adjust the dropout figures we report.

In Tables 57a and 57b, 58 and 58b, and 59a and 59b, participation and achievement indicators are discussed for the key subjects of Math, English, and Science. Subject areas are further differentiated by four 'programs of study' that indicate curriculum differences as well as the intended post-secondary or labour market goals of the individual. These comprise university, mixed, college, and workplace pathways.

Participation is first described for two pathways – a university and an aggregation of the remainder. In effect, this distinguishes academic from vocational training or workforce entry pathways. Achievement is then compared for the various language groups under study differentiated by their chosen post-high school pathway – university, mixed, college, and workplace. Those in the mixed category are enrolled in courses that prepare them for entry to either a university or college. Those opting for the workplace program of study expect to enter directly into the workforce.

1 - Graduation and drop-out rates

Overall graduation rates were essentially the same for English (49%) and non-English (50%) speakers at the modal year (year 4). This similarity continued across the three-year graduation period (year 4 to year 6) which finds, by year 6, that some 65% of the cohort had graduated. A somewhat higher proportion of non-English speakers transferred out of the TDSB. This reflects the higher level of mobility among newcomers noted in the discussion of Table 56 which included immigrant status. Some 2% of students in both English speaking and non-English speaking groups remained in the TDSB after six years. Thus qualified, the dropout rates for the English speaking group was only somewhat higher (23%) than that of non-English speaking groups (21%).

Table 56
Language used at home: Graduation rates and educational pathways, Toronto

Language used at home	Graduated within TDSB						Cumulative	Still in TDSB	Transferred to another educational jurisdiction		Drop-out	
	On time		1 year after expected		2 years after expected							
	N	%	N	%	N	%	%	N	N	%	N	%
Non-English Speakers												
All	3,656	49.9	887	12.1	1,517	2.5	64.5	130	951	13.0	1,517	20.7
Subgroups												
Chinese	1,014	65.4	168	10.8	199	1.9	78.1	29	112	7.2	199	12.8
Tamil	366	55.4	98	14.8	120	1.7	71.9	**	61	9.2	120	18.2
Urdu	203	44.6	62	13.6	80	**	60.0	**	95	20.9	80	17.6
Russian	229	50.8	52	11.5	76	**	63.6	**	85	18.8	76	16.9
Persian	145	38.3	37	9.8	93	3.4	51.5	**	86	22.7	93	24.5
Spanish	84	29.0	36	12.4	105	5.5	46.9	13	36	12.4	105	36.2
Vietnamese	114	44.7	343	13.3	68	4.3	62.3	**	19	7.5	68	26.7
Arabic	64	38.6	17	10.2	36	**	53.6	**	40	24.1	36	21.7
Portuguese	40	27.0	24	16.2	59	**	47.3	**	14	9.5	59	39.9
Somali	86	32.3	39	14.7	96	**	49.6	**	**	**	96	36.1
English Speakers	5,197	48.7	1,422	13.3	2,490	2.8	64.8	238	1027	9.6	2,490	23.1

** Below 10 students.

There is little difference, then, in the proportion of graduates or dropouts among English and non-English speakers either in the trends across year 4 to year 6 or cumulatively. Variation in these indicators is, however, apparent among non-English speakers. Some groups required more time to acquire the credits needed to graduate. Nevertheless, by year 6 somewhat over two-thirds of all students had graduated. Considerable variation exists in the dropout rates of certain non-English speaking groups. Dropout is particularly high among Spanish, Portuguese, and Somali students (over 30%).

2 - Participation and performance in selected topics

English

Table 57a shows that, for non-English speakers, participation in University-bound and other-programs English courses was, 68% and 17% respectively. Among English speakers, 63%

enrolled in a university program English course and 23% enrolled in one of the other category of English courses. In both language groups, some 14% of students had not enrolled in a senior English course or had dropped out. Among non-English speakers, Chinese students had the highest participation proportion in the university program while Portuguese and Spanish speakers had the lowest levels. The latter groups had correspondingly higher enrolments in English courses located in the other category – somewhat over 1/3 of each group.

Table 57a
Language used at home: Participation in grade 12 English courses, Toronto

Language used at home	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Non-English Speakers						
All	4,348	68.3	1,094	17.2	928	14.6
Subgroups						
Chinese	1168	81.2	144	10.0	127	8.8
Tamil	441	73.5	97	16.2	62	10.3
Urdu	244	67.8	64	17.8	52	14.4
Russian	273	74.7	44	12.0	49	13.4
Persian	172	58.7	56	19.1	65	22.2
Spanish	109	42.9	86	33.9	59	23.2
Vietnamese	152	64.4	42	17.8	42	17.8
Arabic	85	67.5	22	17.5	19	15.1
Portuguese	53	39.6	49	36.6	32	23.9
Somali	107	46.3	62	26.8	62	26.8
English Speakers	6,080	63.0	2,204	22.8	1,365	14.1

Table 57b
Language used at home: Performance in grade 12 English courses, Toronto

Language used at home	Average score			
	University-bound	Mixed	College-bound	Workplace
Non-English Speakers				
All	71.4	**	58.4	52.6
Subgroups				
Chinese	74.3	**	57.6	48.3
Tamil	69.7	**	57.8	**
Urdu	71.1	**	60.6	**
Russian	74.2	**	62.9	**
Persian	71.4	**	61.9	**
Spanish	63.9	**	54.6	**
Vietnamese	69.1	**	59.9	**
Arabic	68.3	**	50.8	**
Portuguese	62.5	**	57.9	**
Somali	64.9	**	57.8	**
English Speakers	71.8	**	58.0	56.2

** Below 10 students.

Achievement information by program of study is limited by students' enrolment in English courses associated with either the university or college program. In both these programs, achievement variation across language groups was less than that found in either Math or Science. The averages of English and non-English groups were essentially the same in both university and college programs. Among non-English groups enrolled in a university-program English course, Chinese and Russian speaking students had somewhat higher levels of achievement than the other groups but several of these had achieved at or above the overall average. The averages of Portuguese and Somali speakers enrolled on the university program were somewhat lower.

Math

Table 58a shows that 56% of non-English speaking and 40% of English speaking students enrolled in a Math course associated with the university program of study. Among non-English-speakers, university Math is preferred to the other programs of studies (29%) comprising Math courses associated with the college or workplace program of study. Among English speakers, the

latter is only slightly more attractive than the university program option (44%). Among the non-English speaking subgroups, Chinese and Tamil groups had high levels of participation in university Math courses. Students who spoke Portuguese or Spanish had the lowest level of enrolment in a university Math courses. These groups also had the highest level of participation in other Math courses. Among those groups who were least likely to have enrolled in or most likely to have dropped out of, a senior level Math course were Spanish, Portuguese, and Somali speakers.

Table 58b compares the Math achievement of the various language groups across the four programs of study – university, mixed, college, and workplace. There appears little or no difference in achievement between English and non-English speakers across programs of study. However, differences between the programs of study are marked. Those in the mixed category perform less well than the university students, suggesting many are unlikely to succeed.

Table 58a
Language used at home: Participation in grade 12 Math courses, Toronto

Language used at home	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Non-English Speakers						
All	3,557	55.8	1,845	29.0	968	15.2
Subgroups						
Chinese	1,103	76.7	219	15.2	117	8.1
Tamil	402	67.0	140	23.3	58	9.7
Urdu	197	54.7	109	30.3	54	15.0
Russian	221	60.4	98	26.8	47	12.8
Persian	125	42.7	105	35.8	63	21.5
Spanish	56	22.0	119	46.9	79	31.1
Vietnamese	124	52.5	64	27.1	48	20.3
Arabic	58	46.0	48	38.1	20	15.9
Portuguese	26	19.4	66	49.3	42	31.3
Somali	70	30.3	99	42.9	62	26.8
English Speakers	3,839	39.8	4,271	44.3	1,539	15.9

Table 58b
Language used at home: Performance in grade 12 Math courses, Toronto

Language used at home	Average score			
	University-bound	Mixed	College-bound	Workplace
Non-English Speakers				
All	67.4	49.4	55.6	58.3
Subgroups				
Chinese	70.9	47.8	58.3	61.1
Tamil	64.6	40.2	55.4	56.8
Urdu	65.0	52.3	59.6	60.4
Russian	69.8	54.1	59.4	71.2
Persian	64.8	52.2	60.7	62.4
Spanish	58.1	47.0	53.7	61.1
Vietnamese	64.1	42.6	58.5	**
Arabic	63.4	45.2	54.5	**
Portuguese	58.6	51.0	46.5	49.1
Somali	57.2	46.0	50.6	47.6
English Speakers	65.8	52.4	56.7	57.5

** Below 10 students.

It would appear that the relative Math performance of the various language groups does not vary much across the various programs of study. That is, the relative achievement of members of any particular language group is similar irrespective of program of study. Some groups performed better than others. Chinese and Russian university program students' average achievement was higher than the aggregate of non-English speakers and considerably higher than Somali, Spanish, or Portuguese speakers. The latter groups also have among the lowest levels of Math achievement in the other programs of study.

Science

Table 59a shows that enrolment in Science courses is lower across the various language groups than in English courses although not in Math courses. Enrolment in university-program Science courses among non-English speakers is 61% and, among English speakers, it is 51%. In the other (non-university) programs of study, only three language groups exceed 20% enrolment – Spanish, Portuguese, and Somali speakers. The number of students who are not taking a Science

course is very much higher than is the case with either Math or English. Among non-English speakers, the proportion not enrolled in a senior-level Science course is 28% while among English speakers it is 33%. Among non-English speakers, the groups with the highest level of non-participation in Science are the Portuguese and Spanish speaking students.

While achievement is reported for all four programs of study in Table 59b, low enrolment in the mixed and workplace programs limits our discussion of achievement across language groups to those enrolled in University and College programs. Achievement levels do not differ between English and non-English speakers in both programs of study. Overall achievement in the college program is approximately 10% below that in the university program. In the university program, the achievement levels of Chinese and Russian speaking students were higher than the other groups. Somali and Portuguese speaking students' achievement levels were much lower. Within the college program, Urdu and Persian speakers had the highest achievement levels although these levels do not differ greatly from other groups enrolled in this program. For example, Chinese, Spanish, and Arabic speakers all achieved at or exceeded the 60% level. The remaining groups had similar levels of achievement – between 50% and 55%.

Table 59a
Language used at home: Participation in grade 12 Science courses, Toronto

Language used at home	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Non-English Speakers						
All	3,861	60.6	751	11.8	1,758	27.6
Subgroups						
Chinese	1122	78.0	102	7.1	215	14.9
Tamil	422	70.3	52	8.7	126	21.0
Urdu	216	60.0	44	12.2	100	27.8
Russian	230	62.8	24	6.6	112	30.6
Persian	138	47.1	49	16.7	106	36.2
Spanish	74	29.1	52	20.5	128	50.4
Vietnamese	138	58.5	22	9.3	76	32.2
Arabic	66	52.4	21	6.7	39	31.0
Portuguese	43	32.1	28	20.9	63	47.0
Somali	90	39.0	54	23.4	87	37.7
English Speakers	4,892	50.7	1,615	16.7	3,142	32.6

Table 59b
Language used at home: Performance in grade 12 Science courses, Toronto

Language used at home	Average score			
	University-bound	Mixed	College-bound	Workplace
Non-English Speakers				
All	67.2	63.8	57.5	57.7
Subgroups				
Chinese	70.9	63.5	60.5	58.1
Tamil	64.4	**	54.4	**
Urdu	65.8	**	62.4	**
Russian	69.8	**	54.3	**
Persian	65.1	**	62.2	**
Spanish	61.1	**	59.4	54.3
Vietnamese	65.4	**	55.2	**
Arabic	65.5	**	58.3	**
Portuguese	58.9	**	54.2	**
Somali	56.8	**	51.8	61.9
English Speakers	66.0	63.6	57.8	55.1

** Below 10 students.

3.2.2 Multivariate regression analysis

3.2.2.1 Graduation rates two years after expected

1 - Comparative performance of non-English speakers and various subgroups

The results provided in Table 60 include all students in the TDSB cohort[2]. The purpose of Table 60 is to compare the graduation level among English and non-English speaking participants, while also distinguishing among the five most common language groups in the TDSB, which include Chinese, Tamil, Urdu, Russian, and Persian. An additional language category is included to capture all other non-English speaking respondents. The main question at-stake is: how do the target group and various language subgroups sphere with respect to the comparison group when controlling four differences in students and school characteristics.

[2] Approximatively 10% of the cohort left the TDSB for another school board. Since we were unable to track the education records of these students after leaving the TDSB, we removed them from the analysis. Our final sample, including some missing data, is thus of 12,633.

Table 60
Graduation: Differences between target group (non-English speakers) and subgroups and comparison group (English speakers) with or without control variables, Toronto
N = All target and non target: 12,633

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. English)										
▪ All non-English			1.26	***	1.35	***				
Language subgroup variables (ref. English)								***		***
▪ Chinese							2.08	***	2.04	***
▪ Tamil							1.52	***	1.68	***
▪ Urdu							1.35	***	1.57	**
▪ Russian							1.30		1.54	**
▪ Persian							0.73	*	0.87	
▪ Other non-English speaking							0.84	*	0.90	
Variance of random intercept s2u	0.51	***	0.51	***	0.34	***	0.43	***	0.32	***
Intra-class correlation (% of total variance at school level)	13.0%		13.0%		9.0%		12.0%		9.0%	
% of school level variance explained by model			0.0%		30.7%		7.60%		30.7%	

*** Significant at < 0.001 ** Significant at < 0.01 * Significant at < 0.05

The purpose of Model 1 is to identify the proportion of variation in the response variable attributable to school level characteristics. It is valuable for estimating the magnitude of variation between schools in graduation levels via an unconditional model without any predictors at either level (Model 1). The key estimate in this model is the intra-class correlation (ρ) which indicates that approximately 13 percent of the variation in the outcome is attributable to school level characteristics (p<.001). Since the random effect is highly statistically significant (p<.001) in every model, we proceed to include a random effect at level-2 for all of the models estimated in Table 60.

The "fixed effects" regression estimates in models 2 through 5 are presented as odds ratios. The only fixed effect estimate provided in Model 2 reveals that non-English speaking respondents are more likely to graduate than English speaking respondents (p<.001). This estimate is statistically

significant at the same level in Model 3, where control variables are included. The individual-level control variables include immigrant status, sex, age at entry, whether the respondent has taken ESL classes, whether the respondent had changed schools, if the respondent arrived from outside the TDSB, and median family income of the respondent. The school level variables include a variable which captures the percentage of students in the respondent's school that speak English, and a variable which identifies whether the respondent is in a high school identified by the Toronto District School Board as challenged. The estimates for the control variables have been removed from the Table, and are available upon request.

Model 4 compares graduation levels among English speaking respondents and each group of non-English speaking respondents. The effect of the language variable is statistically significant ($p<.001$), and the parameter estimates reveal that high school students who speak Chinese are most likely to graduate, followed by those who speak Tamil, and then by those who speak Urdu. Students in these language groups are more likely to graduate than their English speaking counterparts ($p<.001$), whereas the odds of graduating among Russian, Persian, and other non-English speaking students are comparable with English speaking students.

The estimates for each language group in Model 5 are interpreted as the odds of graduating, relative to English speaking respondents, the reference category, after controlling for the individual and school level variables that were included in Model 3. The pattern and magnitude of the estimates are similar to those in Model 4. The key exception is the estimate for students who speak Persian, which becomes statistically significant ($p<.001$) when the control variables are added to the model. This likely indicates students in this language group are disadvantaged, relative to English speaking students, in terms of socio-demographic and school characteristics.

2- The impact of socio-demographic, schooling process and school characteristics

The objective of this section is to identify which factors influence the probability of graduating among the target group and various subgroups. Table 61 compares the graduation levels among the non-English speaking respondents. Model 1 reveals that the random component is statistically significant ($p<.001$), indicating that approximately 11 percent of the total variability is attributable to level 2 (school). Thus, the random component is also included in Model 2.

When other variables were controlled for, the language group variable was statistically significant ($p<.001$). The estimates revealed that, with the exception of Persian speaking students, respondents of each of the top four language groups were more likely to graduate ($p<.001$) than students who spoke another non-English language – the reference category. The pattern of the estimates indicated Chinese speaking students were most likely to graduate from the TDSB, followed by students who speak Tamil, Urdu, and Russian, respectively. Among the control variables, immigrant students were more likely to graduate than their native born counterparts ($p<.01$), and females were more likely than males to graduate ($p<.001$). Not unexpectedly, those who entered the school board late were less likely to graduate than those who entered the system on time ($p<.001$).

Arrival outside the TDSB school board did not have a significant impact on graduation among non-English speaking respondents, when controlling for the other variables in the model; however, the impact of median family income did improve the odds of graduating from a school in the TDSB ($p<.001$). Among the school level characteristics, non-English speakers were more likely to graduate if they attended a school in which most students (> 75%) did not speak English. This may be because these schools make a special effort to accommodate non-English speakers or the particular school has a concentration of a particular language group that offers additional and social support. Generally, however, large concentrations of non-English speaking students make the teaching task more difficult in schools where the language of instruction is necessarily English.

Table 61
Graduation: Impact of language group, socio-demographic, schooling process and school level variables (target group), Toronto
N= All target: 3,706

Variables		Empty model		Full model	
				Odds-ratio	Sig
Language subgroups (ref. Other non-English speakers)	Chinese			3.01	***
	Tamil			2.44	***
	Urdu			2.12	***
	Russian			2.25	***
	Persian			1.20	
Socio-demographic	Female (ref. Male)			1.91	***
	Median family income			1.01	***
	Immigrant (ref. Born in Canada)			1.32	*
Schooling process	Late upon entry (ref. Early or on time)			0.37	***
	Changed school (ref. No)			0.33	***
	ESL in high school (ref. No)			0.67	***
	Arrived from outside TDSB (ref. In TDSB in grade 8)			0.88	
School level	School challenged (ref. No)			0.71	
	Percentage of target group in the school 26-50% (ref. 0-25%)			1.24	
	Percentage of target group in the school 51-75% (ref. 0-25%)			1.21	
	Percentage of target group in the school 76-100% (ref. 0-25%)			1.95	*
Variance of random intercept s2u		**0.41**	*******	**0.16**	*******
Intra-class correlation (% of total variance at school level)		**11%**	***	**5%**	
Percentage of school level variance explained by model				**54.5%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

The variable representing school challenge is statistically significant. The estimate for this variable revealed that students of schools classified as challenged were less likely to graduate than their counterparts ($p<.05$). Finally, the intra-class correlation was reduced to .05 when the control variables were added to the model, but remained highly statistically significant ($p<.001$).

The purpose of Table 62 is to assess the impact of the independent variables on graduation, separately for each group of non-English speaking students[3]. Given that there are a considerable number of estimates in the Table, only the most noteworthy findings are addressed. The only variable that is consistently statistically significant across the models is the variable capturing school change. The estimate is in the predicted direction for each group, indicating that students who change schools at least once are considerably less likely to graduate than are their counterparts who do not change schools.

Perhaps the most notable estimate in the Table is for the sex variable in the model for Tamil speaking students. It reveals that the odds of graduating are more than three and a half times larger for females than it is for males ($p<.001$). While females are more likely to graduate than are males for students of the other groups as well, the magnitude of the difference is not nearly as large as it is for students who speak Tamil.

Finally, it should be noted that none of the school level variables are statistically significant for any of the models. However, the magnitude of the estimates for the percent of target group in the same school variable for both the Tamil and Russian models is quite large. Thus, the non-significant findings for this variable for these two groups are likely attributable to the small sample sizes for these two models.

[3] While the random component is not statistically significant for all language groups a multilevel model is employed for each group for consistency so that direct comparisons can be made across groups.

Table 62
Graduation: Impact of socio-demographic, schooling process, and school level variables by language subgroups, Toronto

Variables	Chinese N = 1,336		Tamil N = 557		Urdu N = 327		Russian N = 342		Persian N = 264	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	1.22		3.59	***	1.99	*	1.75		1.62	.
▪ Median family income	1.01	*	1.00		1.02		1.00		1.43	**
▪ Immigrant (ref. Born Canada)	1.07		1.02		1.14		1.70		1.34	
Schooling process variables										
▪ One year late (ref. On time)	0.31	***	0.38	*	0.07	***	0.69		0.86	
▪ Changed school (ref. No)	0.20	***	0.31	***	0.40	**	0.49	*	0.34	***
▪ ESL courses in high school (ref. No)	0.61	*	0.63		0.42	*	0.83		1.23	
▪ Arrived from outside TDSB (ref. In TDSB in grade 8)	1.18		0.69		1.02		1.00		1.01	
School level variables										
▪ School challenged (ref. No)	0.60		0.91		0.59		0.55		0.61	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.22		2.46		0.36		0.16		0.91	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	0.77		2.78		0.54		0.25		1.03	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	0.95		3.26		1.23		0.33		1.68	
Variance of random intercept s2u	0.55	**	0.46		0.00		0.74	*	0.00	
Intra-class correlation (% of total variance at school level)	8%		6%		0%		14%		0%	

3- Differences with the comparison group

The objective of this section is to assess if the same factors have the same impact on the probability of graduating among the non-target group. Thus, the results in Table 63 are for English speaking students only. The first model (null model) revealed that the school level variance was statistically significant ($p<.001$); thus a multilevel model was used for the analysis. In Model 2, the estimates for English speaking students revealed that immigrants were less likely to graduate than were native-born respondents. This finding is somewhat interesting as it is opposite to the results identified in Table 61 for the non-English groups. The region-of-origin section of the report examines the performance of English-speaking immigrants – principally from the Caribbean – that might contribute to this difference. The estimate for the sex variable

revealed that females were more likely to graduate than males (p<.001). Largely consistent with the results for the other language groups, English speaking students who entered high school late were less likely to graduate than those who entered on time (p<.001). Interestingly, English speaking students who tried to improve their proficiency in English by taking ESL classes were more likely to graduate than those who did not take such classes (p<.05). This is not unexpected if such students are immigrants and determined to succeed in school.

Table 63
Graduation: Impact of language group, socio-demographic, schooling process and school level variables (comparison group), Toronto
N = All non target: 8,927

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			1.41	***
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			0.84	**
Schooling process variables				
▪ One year late (ref. On time)			0.30	***
▪ Changed school (ref. No)			0.34	***
▪ ESL in high school (ref. No)			1.24	*
▪ Arrived from outside TDSB (ref. In TDSB in grade 8)			0.73	***
School level variables				
▪ School challenged (ref. No)			0.51	***
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.20	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			1.24	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			2.21	***
Variance of random intercept s2u	0.83	***	0.59	***
Intra-class correlation (% of total variance at school level)	17%		19%	
% of school level variance explained by model			41.12	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Students who changed schools one or more times were considerably less likely to graduate than those who remained in the same school (p<.001), and those who arrived to their high school from outside the TDSB were less likely to graduate than their counterparts who entered high school from the TDSB (p<.001). With respect to our indicator of socioeconomic status, the findings

revealed that students living in neighbourhoods with higher family incomes were more likely to graduate than students with lower family incomes (p<.001). Both school level variables were statistically significant in Model 4. The parameter estimate for the 'percent of target group' in the school variable revealed that the odds of graduating were more than 2 times higher for English-speaking students if they were in schools that consisted mostly of non-English speaking students (>75% non-English speaking) than if they were in schools that consisted mainly of non-English speaking students (< 25% English speaking). This apparent anomaly may be explained by the relative advantage of such students in schools where the language of instruction is English. However, the literature suggests that learning and teaching in these schools is more difficult. It is also possible the finding is a statistical artefact. Those assessed represent a relatively small number (8%) of the English-speaking respondents in the cohort. In any event, the bulk of English speaking students attended schools in which non-English speakers represented from 26-75% of the student body where differences in the likelihood of graduation did not differ from that found in schools with lower non-English speaking enrolments (< 25%).

English speaking students from schools classified as challenged were less likely to graduate than their counterparts in schools not classified as challenged (p<.001). Finally, when all of the variables were included in the model, the proportion of variance at level two remained statistically significant (p<.001). Thus, a considerable amount of variance at the school level is left to be explained by other characteristics not included in the model.

3.2.2.2 Access to university-bound or selective courses

The models estimated in Tables 60 through 63 are replicated in Tables 64 through 68, respectively, only the response variable distinguished between those who were and were not enrolled in a university stream in the TDSB in grade 11. Thus, the sample for the second set of analyses includes only those students who successfully made it to grade 11.

1 - Comparative performance of non-English speakers and various subgroups

Table 64 includes all English and non-English speaking respondents (n=11,609). The level two variance is statistically significant (p<.001) in all models justifying the use of a mixed generalized linear model. The estimate in Model 2 reveals that non-English speaking students are

more likely than their English speaking counterparts to be enrolled in a University stream (p<.001). The magnitude of the estimate is approximately the same in Model 3 and the level of statistical significance is unchanged once the control variables are added to the model. Thus, the difference between English and non-English speaking students in terms of their odds of being in a university stream is not attributable to independent variables in the model.

Table 64
Participation in university-bound courses: Differences between target group (non-English speakers) and subgroups and comparison group (English speakers) with or without control variables, Toronto
N = All target and non target still in the system in grade 11: 11,609

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. English)										
▪ All non-English			1.73	***	1.82	***				
Language subgroup variables (ref. English)								***		***
▪ Chinese							2.56	***	2.86	***
▪ Tamil							2.17	***	2.32	***
▪ Urdu							1.77	***	1.83	***
▪ Russian							1.37	***	1.62	***
▪ Persian							0.90		1.10	***
▪ Other non-English speakers							0.99		0.97	
Variance of random intercept s2u	0.85	***	0.76	***	0.83	***	0.74	***	0.85	***
Intra-class correlation (% of total variance at school level)	21%		19%		20%		18%		20%	
% of school level variance explained by model			50%		4.76%		14.29%		4.76%	

*** Significant at < 0.001 ** Significant at < 0.01 * Significant at < 0.05

In Model 4 (excluding controls) and Model 5 (including controls) the non-English speaking students are further subdivided into the six-non-English subgroups: Chinese, Tamil, Urdu, Russian, Persian, and other non-English speaking students. The estimates from these models mirror the results from Table 65, whereby students who speak Chinese are most likely to be in a university stream, followed by students who speak Tamil, and then by students who speak Urdu. All three groups were more likely to be enrolled in a university stream than are the reference

category, English speaking students (p<.001). Similar to the pattern displayed in Table 60, when the control variables were added to Model 5, Russian speaking students also became significantly more likely to be in a university stream than English speaking students (p<.001). This finding also supports the argument that Russian speaking students were disadvantaged, relative to English speaking students, with respect to socio-demographic and school related characteristics.

2 - Impact of socio-demographic, schooling process and school characteristics variables

The models estimated in Table 65 are for non-English speaking students only (n=3,333). In both models, the intercept only model and the full model, the amount of variability at level 2 is statistically significant (p<.001), indicating that the chance of a non-English speaking student being enrolled in a university stream varied randomly across schools. However, in comparing the random components across models, it appears that the independent variables accounted for more than one third of the school-level variability.

The impact of language group is statistically significant (p<.001), and the pattern of the parameter estimates is similar to the pattern identified in Model 5. Chinese speaking students were most likely to be enrolled in a university level stream, followed by students who spoke Tamil, and then by Urdu speaking students. The difference between Chinese and Tamil speaking students and the reference category, other non-English speaking students was statistically significant at p<.001, while the difference between Urdu speaking students and the reference category was statistically significant at p<.05. There was no difference among students who spoke Russian, Persian and other non-English languages in terms of the odds of being in a university bound stream (p=ns).

Among the control variables non-English speaking students were more likely to be enrolled in a university stream if they were female (p<.001), did not require additional training in English (p<.001), and had not changed schools (p<.001). Non-English speaking students were also more likely to be in university streams if they were in families with higher family incomes (p<.01). In contrast, the effects of immigrant status, age of entry, and the variable that identifies whether the student was already in the TDSB in grade 8 were not statistically significant among non-English speaking students.

Table 65
Participation in university-bound courses: Impact of language group, socio-demographic, schooling process and school level variables (target group), Toronto
N = All target still in the system in grade 11: 3,333

Variables		Empty model		Full model	
				Odds-ratio	Sig
Language subgroups (ref. Other non-English speakers)	Chinese			2.75	***
	Tamil			2.08	***
	Urdu			1.79	
	Russian			1,59	***
	Persian			0.82	
Socio-demographic	Female (ref. Male)			1.47	***
	Median family income			1.01	**
	Immigrant (ref. Born in Canada)			0.81	
Schooling process	Late upon entry (ref. Early or on time)			0.65	
	Changed school (ref. No)			0.44	***
	Still needed ESL in high school (ref. No)			0.45	***
	Arrived from outside TDSB (ref. in TDSB in grade 8)			1.20	
School level	School challenged (ref. No)			0.76	
	Percentage of target group in the school 26-50% (ref. 0-25%)			2.01	
	Percentage of target group in the school 51-75% (ref. 0-25%)			1.87	
	Percentage of target group in the school 76-100% (ref. 0-25%)			3.07	*
Variance of random intercept s2u		**1.03**	*******	**0.57**	*******
Intra-class correlation (% of total variance at school level)		**24%**		**15%**	
Percentage of school level variance explained by model				**37.5%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Among the whole group of non-English speaking students, both of the school level variables were not statistically significantly related to whether or not a student was enrolled in a university stream. Interestingly, however, the estimated odds ratios for the variable which identified the percentage of target group in the respondent's school were large, and indicate that non-English speaking students were more likely to be in a university stream if they were in schools with a

higher proportion of students who spoke the same language. Thus, the significance tests for the estimates were likely strongly influenced by the sample sizes corresponding with the parameter estimates[4].

Table 66
Participation in university-bound courses: Impact of socio-demographic, schooling process and school level variables by language subgroups, Toronto

Variables	Chinese N = 1,168		Tamil N = 450		Urdu N = 258		Russian N = 274		Persian N = 180	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	1.23		1.82	*	1.17		0.80		1.65	.
▪ Median family income	1.02	**	1.00		1.00		1.01		1.03	*
▪ Immigrant (ref. Born in Canada)	0.52	**	1.00		2.83	*	0.66		4.72	
Schooling process variables										
▪ One year late (ref. Early or on time)	0.52		0.54		0.16		1.28		0.33	
▪ Changed school (ref. No)	0.39	***	0.50	*	0.29	**	0.43		0.94	
▪ ESL courses in high school (ref. No)	0.36	***	0.22	***	0.74		0.72		0.43	
▪ Arrived from outside TDSB (ref. In TDSB in grade 8)	2.72	**	0.53		0.63		1.77		2.14	
School level variables										
▪ School challenged (ref. No)	0.60		1.31		1.44		0.80		0.73	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.40		1.53		1.09		2.72		4.71	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	1.38		1.98		1.45		0.92		9.69	*
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	1.27		169		1.53		1.21		20.30	*
Variance of random intercept s2u	0.67	***	0.00		0.17		0.00		0.18	.
Intra-class correlation (% of total variance at school level)	17%		0%		5%		0%		5%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Table 66 presents the regression results separately for each of the non-English speaking groups. As was the case with Table 62, the small sample size for many of the language group models made it difficult to detect statistically significant findings for some of language groups (e.g., Persian, Urdu, Russian, and Tamil). In most instances, the parameter estimates were in the expected direction, consistent with the results in Table 66. Estimates that were not in the expected direction were generally not too far off to be concerning. The most noteworthy

[4] For example, while the odds ratio for the parameter indicating that more than 75% of students speak the same language as the respondent is greater than three, the proportion of respondents in this category is very small.

discrepancy involved the school level variable that identifies the percentage of target group in the respondent's school for students who spoke Persian. The odds ratios for this variable revealed that these students benefited most dramatically from being in schools where there was a high proportion of other students who did not speak English. However, these estimates were highly suspect given that the sample size for this model was especially small (n=180).

3 - Differences with the comparison group

The model estimated for each of the non-English speaking language groups is reproduced in Table 67 for English speaking students. The empty model in Table 67 indicates that there is a significant amount of variability in the response variable across schools ($p<.001$). However, unlike the case for non-English speaking students, the second model reveals none of the school level variability is attributable to the independent variables in the model. The random component remains statistically significant at $p<.001$. Likewise, all of the regression estimates are also statistically significant at $p<.001$. With the exception of the variable which distinguishes between students who had taken ESL classes, the direction of the regression estimates is identical to the estimates provided in Table 4, where graduation was the response variable. Thus, English speaking students in the TDSB were more likely to be enrolled in a university stream if they were Canadian born, female, entered the system on time, did not change schools, and entered high school from within the TDSB. Students enrolled in the university stream were also more likely to have higher family incomes.

Finally, whereas English speaking students were more likely to graduate if they had taken ESL courses, such students were less likely to be in a university stream ($p<.001$). The latter finding is not unexpected as it would be unlikely that English speaking students in a university stream would be successful if they required additional training in English.

As with graduation, English speaking students were more successful when they were in a school where the majority of students were non-English speakers ($p<.001$). For example, the odds of being enrolled in a university bound stream were more than twice as high for students in highly concentrated non-English speaking schools (e.g., if they were in schools where more than 75% of the students did not speak English as opposed to less than 25%). The difficulties in

interpreting this finding were previously discussed with respect to the link between language concentration in schools and graduation rates. Similarly, English speaking students were more likely to be enrolled in a university stream if they attended schools that were not classified as challenged (p<.001).

Table 67
Participation: Impact of language group, socio-demographic, schooling process and school level variables (comparison group), Toronto
N = All non target still in the system in grade 11: 8,276

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			1,29	***
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			0.72	***
Schooling process variables				
▪ One year late (ref. On time)			0.38	***
▪ Changed school (ref. No)			0.43	***
▪ ESL courses in high school (ref. No)			0.52	***
▪ Arrived from outside TDSB (ref. In TDSB in grade 8)			1.26	***
Schooling level variables				
▪ School challenged (ref. No)			0.49	***
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.40	**
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			1.37	**
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			2.29	***
Variance of random intercept s2u	0.82	***	0.86	***
Intra-class correlation (% of total variance at school level)	20%		21%	
% of school level variance explained by model			0	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

3.3 EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF FOREIGN-BORN STUDENTS: DESCRIPTIVE DATA

In this section we first profile the cohort by country of origin detailing selected social structures, personal characteristics, risk factors and school context factors. A basic distinction is made

between foreign-born and native-born students. The second section includes a discussion of each groups' participation and achievement in Math, English, and Science.

3.3.1 Characteristics of the target and comparison groups and of subgroups

When defined in terms of region of birth, the Toronto cohort numbered 15,628 students who, in 2000, entered grade 9 in the TDSB. Of these, 5,934 (38%) indicated they were born outside Canada. This group is our target group and was divided through the process described in section 1.3.2, into six subgroups. The remaining 9,694 students – those born in Canada – were designated the comparison group.

Among the target group, those born in Eastern Asia (21%) and Southern Asia (23%) were most numerous. They were followed by the students from the Caribbean and Bermuda (11%), Eastern Europe (10%), and West Central Asia and the Middle East (9%). The remaining subgroup was from Eastern Africa (5%).

1 - Social structures and personal characteristics

Gender

As can be seen at Table, 68, 48% of the students born in Canada were female. This gender distribution holds for students born outside of Canada except in the case of Eastern Africa where there was a majority of female.

Table 68
Region of birth: Gender, Toronto

Region of birth	Male		Female	
	N	%	N	%
Outside Canada				
All	3,073	51.8	2,861	48.2
Subgroups				
Caribbean and Bermuda	324	51.0	311	49.0
Eastern Europe	287	50.8	278	49.2
Eastern Africa	153	48.0	166	52.0
West Central Asia and Middle East	280	52.1	257	47.9
Eastern Asia	651	53.2	573	46.8
Southern Asia	712	52.2	653	47.8
Canada	5,040	52.0	4,654	48.0

Socio-economic status

As stated above, postal codes for students were matched with dissemination area (DA) level information in the 2001 Census with regard to median family income of families and then median family income was broken down into quintiles for each of the 6 regional groups. In examining the lowest quintile or median income category, we see in Table 69 that almost 29% of all regional sub groups born outside of Canada fell within this lowest income group; this contrasts with 13.4% for students that were born in Canada. Students from Southern Asia Eastern Africa and the Caribbean and Bermuda were found to be disproportionately represented in the lowest median income group. Students from Eastern Asia were similar to students born in Canada.

Table 69
Region of birth: Median family income in EA of residence, Toronto

Region of birth	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Outside Canada										
All	1,634	28.6	1,480	25.9	1,291	22.6	795	13.9	517	9.0
Subgroups										
Caribbean and Bermuda	199	32.8	173	28.5	154	25.4	61	10.1	19	3.1
Eastern Europe	112	20.2	170	30.6	109	19.6	92	16.6	72	13.0
Eastern Africa	117	39.5	93	31.4	49	16.6	20	6.8	17	5.7
West Central Asia and Middle East	133	25.8	168	32.6	106	20.6	60	11.7	48	9.3
Eastern Asia	164	13.8	246	20.7	321	27.0	266	22.4	190	16.0
Southern Asia	527	40.1	330	25.1	281	21.4	137	10.4	39	3.0
Canada	1,268	13.4	1414	15.0	1,918	20.3	2,205	23.4	2,632	27.9

Language spoken at home

As seen in Table 70, among students that were born in Canada, English was the predominant language spoken at home (83.7%). Among students born outside of Canada, 25.3% were found to speak English at home. However, this proportion was inflated by the fact that most students from the Caribbean and Bermuda (97.6%) spoke English at home. When the languages spoken by students were examined by region of birth, most students spoke a language other than English at home, the exception being students from the Caribbean and Bermuda.

Table 70
Region of birth: Language spoken at home, Toronto

Region of birth	English		Non-English	
	N	%	N	%
Outside Canada				
All	1,489	25.3	4,405	74.7
Subgroups				
Caribbean and Bermuda	614	97.6	15	2.4
Eastern Europe	19	3.4	545	96.6
Eastern Africa	40	12.7	276	87.3
West Central Asia and Middle East	66	12.3	469	87.7
Eastern Asia	130	10.7	1,088	89.3
Southern Asia	176	13.0	1,181	87.0
Canada	8,016	83.7	1,565	16.3

2 - Risk factors

Age when entering high school

The age at which students entered secondary schools in the TDSB was not necessarily a function of late arrival from source countries for newcomer youth. Rather, it may reflect cumulative disadvantages in the transition pathways of students that move from the elementary level to the secondary level. As such, being one year late in entry to secondary school is seen as at risk factor. Table 71 reveals that only 4.9% of students born in Canada started their secondary studies at the age of 15 or older while 9.2% of students born outside of Canada began their secondary studies at this age. An inspection of age at entry for different regional groups revealed that students from the Caribbean and Bermuda were the most likely to enter secondary school at the age of 15 or older and students from Eastern Africa were also likely to enter late. Among students born outside of Canada, those from West Central Asia and the Middle East were least likely to enter late.

Table 71
Region of birth: Age when entering high school, Toronto

Region of birth	Early		On time		One year late	
	N	%	N	N	N	%
Outside Canada						
All	92	1.6	5,299	89.3	543	9.2
Subgroups						
Caribbean and Bermuda	**	**	533	83.9	93	14.6
Eastern Europe	**	**	514	91.0	47	8.3
Eastern Africa	**	**	276	86.5	36	11.3
West Central Asia and Middle East	14	2.6	488	90.9	35	6.5
Eastern Asia	13	1.1	1,100	89.9	111	9.1
Southern Asia	31	2.3	1,231	90.2	103	7.5
Canada	81	0.8	9,142	94.3	471	4.9

** Below 10 students.

Level of entry into the school system

While 80% of students entered the TDSB from elementary schools within the TDSB, about 20% entered either from another Canadian jurisdiction or as immigrants. Of those born in Canada, 18.1% were newcomers from another Canadian school board. Of those born outside of Canada, 9.8% were newcomers from inside of Canada and 11.4% were newcomers from outside of Canada. With respect to region of birth of newcomers from outside of Canada we observed a range, from 17.2% for students born in Eastern Europe to 9.0% born in the Caribbean and Bermuda.

Table 72
Region of birth: Level of entry into the school system, Toronto

Region of birth	In TDSB elementary		Newcomers from inside Canada		Newcomers from outside Canada	
	N	%	N	%	N	%
Outside Canada						
All	4,677	78.8	582	9.8	675	11.4
Subgroups						
Caribbean and Bermuda	498	78.4	80	12.6	57	9.0
Eastern Europe	395	69.9	72	12.7	98	17.3
Eastern Africa	248	77.7	45	14.1	26	8.2
West Central Asia and Middle East	426	79.3	43	8.0	68	12.7
Eastern Asia	1,003	81.9	68	5.6	153	12.5
Southern Asia	1,089	79.8	107	7.8	169	12.4
Canada	7,938	81.9	1,756	18.1	**	**

** Below 10 students.

Frequency of school changes (within 4 years of entering grade 8)

As seen in Table 73, the proportion of students either born inside or outside of Canada that experienced one or more school changes in their secondary education careers was approximately the same at 20%. However, if we disaggregate those born outside of Canada by region of birth we can identify significant variations in the frequency of school moves. Thus, one out of four students from Eastern Africa, West Central Asia and the Middle East and the Caribbean and Bermuda experienced one or more school changes during their secondary school careers. In contrast, only 14% of students from Eastern Asia experienced comparable school changes.

Table 73
Region of birth: Frequency of school changes (within 4 years of entering grade 8), Toronto

Region of birth	No school change		One or more school changes	
	N	%	N	%
Outside Canada				
All	4,743	80.3	1,166	19.7
Subgroups				
Caribbean and Bermuda	483	76.2	151	23.8
Eastern Europe	463	82.4	99	17.6
Eastern Africa	228	72.2	88	27.8
West Central Asia and Middle East	397	74.1	139	25.9
Eastern Asia	1,051	86.0	171	14.0
Southern Asia	1,049	80.6	263	19.4
Canada	7,822	81.0	1,832	19.0

ESL-ELD courses in high school

As anticipated, virtually no students born in Canada elected to take ESL-ELD courses at the secondary level while 20.8% of students born outside of Canada enrolled in such courses. With respect to variations by region of birth, as seen in Table 74, students born in Eastern Asia and West Central Asia and the Middle East were the most likely to take ESL-ELD courses in high school while students from the Caribbean and Bermuda and Eastern Africa were least likely to enrol. It should be noted that English is primarily spoken in the Caribbean and Bermuda region.

Table 74
Region of birth: ESL-ELD courses in high school, Toronto

Region of birth	Yes		No	
	N	%	N	%
Outside Canada				
All	1,236	20.8	4,698	79.2
Subgroups				
Caribbean and Bermuda	62	9.8	573	90.2
Eastern Europe	124	21.9	441	78.1
Eastern Africa	40	12.5	279	87.5
West Central Asia and Middle East	149	27.7	388	72.3
Eastern Asia	374	30.6	850	69.4
Southern Asia	316	23.2	1,049	76.8
Canada	90	0.9	9,604	99.1

3 - School characteristics

Concentration of non-English speakers

As stated above, a school context variable was created consisting of schools varying in the concentration of non-English speakers, ranging at one end of the continuum from schools with 0-25% non-English speakers to schools with 76-100% non English speakers. As seen in Table 75, 70% of students born outside of Canada were located in schools where more than 50% of students spoke a language other than English. In contrast, only 46% of students born in Canada attended schools with equivalent concentrations of non-English speakers. Each of our six region-of-birth sub groups were analysed in terms of their location in school varying in concentration of non-English speakers to determine whether there were regional variations. With respect to a high concentration of non-English speakers, we found that students from Eastern Asia, Southern Asia and West Central Asia and the Middle East were located in the most concentrated schools. Students from the Caribbean and Bermuda and Eastern Europe were located in less concentrated schools with respect to non-English speakers.

Table 75
Region of birth: Concentration of non-English speakers in school attended, Toronto

Region of birth	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Outside Canada								
All	328	5.7	1,385	23.9	3,069	52.9	1,017	17.5
Subgroups								
Caribbean and Bermuda	76	12.2	206	33.0	315	50.5	27	4.3
Eastern Europe	35	6.4	169	31.0	273	43.5	104	19.1
Eastern Africa	23	7.3	67	21.3	193	61.5	31	9.9
West Central Asia and Middle East	18	3.4	118	22.4	266	50.6	124	23.6
Eastern Asia	29	2.4	198	16.3	596	49.0	393	32.3
Southern Asia	43	3.2	255	19.2	790	59.6	237	17.9
Canada	1,634	17.1	3,446	36.1	3,709	38.9	757	7.9

External challenge of the school

According to Table 76, 10.7% of students born in Canada and 23.3% of students born outside of Canada were enrolled in high external challenge schools. Furthermore, there was also considerable variation among students born outside of Canada with respect to enrolment in high external challenge schools. For example, fully 39.3% of students from Eastern Africa and only 9.7% of students from Eastern Asia carried out their studies in high external challenge schools.

Table 76
Region of birth: External challenge of school attended, Toronto

Region of birth	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Outside Canada										
All	842	14.5	1,266	21.8	1,361	23.5	981	16.9	1,349	23.3
Subgroups										
Caribbean and Bermuda	23	3.7	102	16.3	163	26.1	171	27.4	165	26.4
Eastern Europe	169	31.0	86	15.8	138	25.3	30	5.5	122	22.4
Eastern Africa	13	4.1	32	10.2	71	22.6	75	23.9	123	39.2
West Central Asia and Middle East	78	14.8	75	14.3	135	25.7	96	18.3	142	27.0
Eastern Asia	305	25.1	467	38.4	227	18.7	99	8.1	118	9.7
Southern Asia	53	4.0	316	23.8	370	27.9	271	20.5	315	23.8
Canada	2,938	30.8	1,927	20.2	2,302	24.1	1,361	14.3	1,018	10.7

3.3.2 Comparative educational pathways and academic performance

1 - Graduation and drop-out rates

An examination of Table 77 shows, first, that completion trends from year 4 to year 6 were generally similar although foreign-born students' cumulative completion rate was somewhat lower. Some 61.4 % of foreign-born students completed after 6 years while 65.5% of Canadian-born had graduated by that time. Adjusted for those who remained in the TDSB system or who had transferred to another educational jurisdiction, the dropout rates were basically the same between groups (23%). There exists considerable variability within the foreign-born group. Year 4 completion is markedly higher for students from Eastern Asia than from the Caribbean or Eastern Africa and the Middle East. However, some 10% to 15% of students from these regions graduated by the second year. Dropout rates for Eastern Africa and the Caribbean were higher than the average for foreign-born groups. Dropout figures for those from the Middle East were close to the average but this figure was adjusted for the large number of students who transferred out of the TDSB (22%).

Table 77
Region of birth: Graduation rates and educational pathways, Toronto

Region of birth	Graduated within TDSB						Cumul-ative	Still in TDSB	Transferred to another educational jurisdiction		Drop-out	
	On time		1 year after expected		2 years after expected							
	N	%	N	%	N	%	%	N	N	%	N	%
Outside Canada												
All	3,280	47.1	843	12.1	152	2.2	61.4	101	1024	14.7	1,558	22.4
Subgroups												
Caribbean and Bermuda	185	25.0	113	15.2	22	3.0	43.2	19	106	14.3	296	39.9
Eastern Europe	361	53.2	73	10.8	11	1.6	65.6	**	114	16.8	113	16.6
Eastern Africa	140	39.3	51	14.3	**	**	56.1	**	37	10.4	113	31.7
West Central Asia and Middle East	279	40.6	76	11.1	14	2.0	53.7	10	150	21.8	158	23.0
Eastern Asia	893	64.4	117	8.4	21	1.5	74.3	14	163	11.8	197	12.9
Southern Asia	797	49.8	215	13.4	35	2.2	65.4	21	235	14.7	297	18.6
Canada	5,301	49.6	1,390	13.0	315	2.9	65.5	258	998	9.3	2,430	22.7

** Below 10 students.

2 - Participation and performance in selected topics

English

Table 78a shows there are no apparent differences in participation by native-born and foreign-born students. Within the foreign-born group, the regional group with the highest university enrolment was from Eastern Asia while that with the lowest level of enrolment was from the Caribbean. Caribbean student enrolment in the 'other' English programs category was much higher than the foreign-born average. Relatively high non-participation (not enrolled category) was found for the following groups: Caribbean, Eastern African, and the Middle East.

Achievement information in Table 78b is available only for the university and college programs of study due to the very small numbers enrolled in either mixed or work place English programs. For the university and college programs, there were no differences in achievement between foreign-born and native-born groups. Achievement differences of approximately 13% between university and college programs were the same for both foreign-born and native-born. Within the foreign-born groups, university achievement differences were less marked than in Math.

However, the achievement of Caribbean students was well below the foreign-born average as it was in the college program.

Table 78a
Region of birth: Participation in grade 12 English courses, Toronto

Region of birth	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Outside Canada						
All	3,768	63.5	1,220	20.6	946	15.9
Subgroups						
Caribbean and Bermuda	180	28.3	249	46.3	161	25.4
Eastern Europe	423	74.9	65	11.5	77	13.6
Eastern Africa	177	55.5	76	23.8	66	20.7
West Central Asia and Middle East	314	58.5	117	21.8	106	19.7
Eastern Asia	1004	82.0	91	7.4	129	10.5
Southern Asia	947	69.4	234	17.1	184	13.5
Canada	6,355	65.6	1,965	20.3	13,74	14.2

Table 78b
Region of birth: Performance in grade 12 English courses, Toronto

Region of birth	Average score			
	University-bound	Mixed	College-bound	Workplace
Outside Canada				
All	71.3	**	58.0	55.2
Subgroups				
Caribbean and Bermuda	63.7	**	54.7	56.6
Eastern Europe	75.0	**	62.9	**
Eastern Africa	67.0	**	58.4	**
West Central Asia and Middle East	69.9	**	62.5	**
Eastern Asia	74.8	**	58.3	**
Southern Asia	70.2	**	58.9	53.5
Canada	71.9	**	58.0	55.5

Math

Differences in Math participation between native-born and foreign-born students vary by program (Table 79a). Some 52% of foreign-born students enrolled in the university program of study while this figure was 42% for the native-born. Enrolment for the native-born in the other program category was 42% and for the foreign-born it was 32%. Those not enrolled in any program were approximately 16% for both foreign and native-born groups. Within the foreign-born group, there were large regional differences in university participation. Students from Eastern Asia enrolled in the university program in large numbers. Enrolments from Eastern Europe and Southern Asia were above the average of the foreign-born group. Relatively few students from the Caribbean opted for the university path. In the 'other' programs category, some 60% of Caribbean region students were enrolled. Enrolments from the Middle East were 38% and 40% from Eastern Africa.

Table 79b shows minimal differences between foreign and native-born students in Math achievement. There were marked differences across programs of study – achievement in the university program was 10% to 15% higher, irrespective of region of birth. Within the foreign-born group there were achievement differences by program of study. In the university program, Eastern Asian students had the highest marks while those from the Caribbean were markedly lower. In the mixed program category, Eastern African students' average mark was 46%. However, their numbers are too few to make an adequate estimate of achievement. Among college students, those from the Caribbean and Eastern Africa were less than the foreign-born average. In the workplace category, marks attained by students from Caribbean and Eastern Africa also were comparatively low.

Table 79a
Region of birth: Participation in grade 12 Math courses, Toronto

Region of birth	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Outside Canada						
All	3,063	51.6	1,882	31.7	989	16.7
Subgroups						
Caribbean and Bermuda	80	12.6	379	59.7	176	27.7
Eastern Europe	337	59.6	151	26.7	77	13.6
Eastern Africa	117	36.7	128	40.1	74	23.2
West Central Asia and Middle East	221	41.2	206	38.4	110	20.5
Eastern Asia	972	79.4	141	11.5	111	9.1
Southern Asia	806	59.0	376	27.5	183	13.4
Canada	4,104	42.3	4,041	41.7	1,549	16.0

Table 79b
Region of birth: Performance in grade 12 Math courses, Toronto

Region of birth	Average score			
	University-bound	Mixed	College-bound	Workplace
Outside Canada				
All	67.4	50.0	54.5	56.9
Subgroups				
Caribbean and Bermuda	58.1	49.0	48.9	52.3
Eastern Europe	70.6	54.2	59.5	66.2
Eastern Africa	63.3	46.1	49.4	49.5
West Central Asia and Middle East	65.0	52.3	56.8	59.7
Eastern Asia	72.5	51.2	57.7	64.8
Southern Asia	65.0	47.5	57.6	61.5
Canada	66.1	52.4	57.2	57.9

Science

Table 80a shows that Science participation was considerably lower than either math or English. Some 30% of students were not enrolled in a senior science course. Differences between foreign-born and native-born enrolments in university or college programs were not large – some 2% to

4%. Within the foreign-born group there were some notable differences in participation. Science enrolment of Eastern Asian students was higher than the foreign-born average of 53% while that of Caribbean students was much lower. Relatively more Caribbean students were enrolled in a Science course in the 'other' programs category than the foreign-born average of 15%.

Table 80b contains achievement information for all TDSB programs of study although enrolment in the mixed and workplace categories was quite low, making reliable comparisons difficult. Native-born and foreign-born differences in achievement were not noticeable across programs of study. Within the foreign-born group, those enrolled in a university program science course displayed some differences. Here, Eastern Asian students' average was 73% while that of Caribbean students was 57%. In the college program, Eastern Asian student marks were somewhat higher than the foreign-born average.

Table 80a
Region of birth: Participation in grade 12 Science courses, Toronto

Region of birth	University-bound		Other programs		Not enrolled	
	N	%	N	%	N	%
Outside Canada						
All	3,366	56.7	804	13.5	1,764	29.7
Subgroups						
Caribbean and Bermuda	151	23.8	195	30.7	289	45.5
Eastern Europe	358	63.4	40	7.1	167	29.6
Eastern Africa	143	44.8	66	20.7	110	34.5
West Central Asia and Middle East	256	47.7	83	15.5	198	36.9
Eastern Asia	971	79.3	61	5.0	192	15.7
Southern Asia	874	64.0	145	10.6	346	25.3
Canada	5,126	52.9	1,474	15.2	3,049	31.9

Table 80b
Region of birth: Performance in grade 12 Science courses, Toronto

Region of birth	Average score			
	University-bound	Mixed	College-bound	Workplace
Outside Canada				
All	67.3	62.5	56.9	57.9
Subgroups				
Caribbean and Bermuda	57.4	57.0	55.6	55.5
Eastern Europe	69.7	68.6	57.8	**
Eastern Africa	60.8	**	53.0	60.8
West Central Asia and Middle East	65.4	64.8	59.4	62.4
Eastern Asia	73.3	70.7	63.4	65.5
Southern Asia	65.5	**	57.3	56.2
Canada	66.0	64.0	58.1	54.6

** Below 10 students.

3.4 CONCLUSIONS AND POLICY IMPLICATIONS

This report first profiled the TDSB cohort of students entering grade 9 in 2000. It then described their participation and achievement in Math, English, and Science. In order to better understand group differences in graduation rates and choice of a post-secondary pathway we conducted a multi-level regression employing selected variables at both the individual level and the school and neighbourhood levels. In this section, we summarize the main findings of the descriptive and explanatory parts of the study. The adaptation of non-English speakers to the TDSB and their successful progress through the system – from grade 9 to graduation – is not only of cultural interest but also of policy importance. Based on this overview, we point to areas of opportunity and vulnerability among non-English speaking students which should be of concern to educational decision-makers.

1 - Graduation highlights

The non-English speaking students in the grade 9 cohort profiled in this study illustrate the very great diversity among youth in Canada's largest city. Many are new-comers and many others are the children of immigrants. They vary in terms of their personal characteristics and situations;

and the schools they attend are similarly varied in terms of the linguistic status and socio-economic advantages of the student body. Using graduation as the criterion, we present in Table 81 those factors that were found to be significant predictors in the regression analyses conducted with these groups. For each factor, we indicate the direction (positive or negative) of its effect on the likelihood of graduation.

Table 81
Language used at home: Significant personal and contextual factors, Toronto

	English speakers	Non-English speakers
Immigrant	-	+
Gender (female)	+	+
Late entry from elementary	-	-
Took ESL/ESD	+	-
School change (1 or more)	-	-
Arrived from outside TDSB	-	-
Language composition of school (> 75% non-English)	+	+
School challenged	-	-

The profile outlined in Table 81 illustrates the many similarities in individual differences and circumstances of both English and non-English speaking students in the TDSB. Being female is associated with a higher probability of graduating, irrespective of language spoken. This is consistent with research on male underachievement and gender differences in dropout which indicates that males are at greater risk for school failure. Similarly, late entry to high school (grade 9) – where this indicates academic difficulty in the elementary school – has a negative effect on both language groups. Mobility also puts students at risk of not graduating. Irrespective of language group membership, students who arrive in grade 9 from outside the TDSB or who have changed schools are at risk. Immigrant children in particular are likely to be less 'geographically settled' and while most adjust, high levels of mobility affects their chances of graduation, as it does all students. The socio-economic status of the student body appears to be an important determinant of graduation success. Disadvantaged schools negatively affect graduation chances of their English and non-English speaking. The fact that ESL instruction for non-English speakers is negatively associated with graduation suggests that such assistance is not

sufficient to attain achievement levels needed to complete the program. However, English-speaking students enrolled in ESD courses – primarily Caribbean immigrant students – do appear to benefit. Our findings are not consistent with the literature on the academic returns to ESL instruction. This literature does, however, indicate duration of ESL/ESD instruction qualifies its effects. Unfortunately, we do not have this information.

There are some factors that have a differential effect on the language groups; and others that represent anomalies. First, immigrant students whose home language is not English are more likely to graduate. This is consistent with the notion of immigrant 'resiliency' that argues a higher level of academic purpose among newcomer youth. To the extent these individuals are motivated to succeed in school, they will overcome any barrier that initial lack of English language competence might pose. Being an English-speaking immigrant is a risk factor. It is not obvious why this should be the case, since the language of instruction is English. Region of origin may offer some explanation. The majority of youth in this category come from the Caribbean and for a variety of reasons fail to adjust to the demands of TDSB schools.

Similarly, being enrolled in a school with a high level of non-English speakers is positively associated with graduation. Since the language of instruction is English, one would expect the teaching task for teachers to be more difficult in such schools. On the other hand, a high concentration of non-English speakers from the same ethnic groups may confer a sense of belonging and a measure of support that compensates for any language difficulties with teachers. This finding probably needs qualification as the number of students affected is relatively small – about 18% of non-English speaking students and 8% of English speakers.

2 - Participation and achievement highlights

Achievement in the key curricular areas of math, English, and science is essential for graduation. It is useful therefore to summarize the performance of the academically strongest and weakest language groups in Math, English, and Science. The university program nevertheless has the largest enrolment and represents the preferred pathway for most immigrant and non-English speaking group individuals. The following table (Table 82) illustrates both participation proportions and achievement percentages for non-English speaking groups selected on the basis

of their relative (highest vs. lowest) academic performance. In emphasizing high and low performing groups we draw attention to those groups who are adjusting well (even excelling) in the high school system and those who are more vulnerable to low achievement, disengagement, and higher rates of dropout.

Table 82
University program of study: Participation and performance (language groups), Toronto

Language Group	Math		English		Science	
	Participation	Achievement	Participation	Achievement	Participation	Achievement
English	40	66	63	72	51	66
Non-English	56	67	68	72	61	67
▪ 'High'	Chinese (77)	Chinese (71)	Chinese (81)	Chinese (74) Russian (74)	Chinese (78)	Chinese (71)
▪ 'Low'	Portuguese (26)	Somali (57)	Portuguese (40)	Portuguese (63)	Spanish (29) Portuguese (32)	Somali (57)

The participation trends shown in Table 82 indicate that English-speaking students' enrolment in these senior courses was less than that of non-English speaking students. This obtains across all subjects but was particularly noticeable in Math. Aggregate achievement levels were virtually identical in all subjects. When we compared the highest and lowest achieving language groups we see that Chinese-speaking students had both very high participation rates and achievement levels. Among the more academically at-risk groups were Portuguese, Spanish and Somali - speaking youth. Exploring the basis for language-group differences in performance will require more detailed research than is possible with this analysis of Tables and with the limited number of available variables. Our subgroup analysis of the antecedents and correlates of graduation showed, not surprisingly, that contextual factors and basic individual differences had similar effects on all youth, irrespective of language group membership. In any event, that analysis did not include the language groups identified in Table 82 because of the limited number of cases.

In Table 83 we similarly summarize participation and achievement for Region of birth. To the extent language spoken in the home is a proxy for immigrant status the information in these Tables will overlap. However, knowledge of the school performance of foreign-born youth complements the analysis of language group differences – which does not distinguish first from second generation immigrants.

Table 83
University program of study: Participation and performance (region of birth groups), Toronto

Region of birth	Math		English		Science	
	Participation	Achievement	Participation	Achievement	Participation	Achievement
Canada	42	66	66	72	53	66
Outside Canada	52	67	64	71	57	67
▪ 'High'	E. Asia (79)	E. Asia (73)	E. Europe (75) E. Asia (82)	E. Europe (75) E. Asia (75)	E. Asia (79)	E. Asia (73)
▪ 'Low'	Caribbean (13)	Caribbean (58)	Caribbean (28)	Caribbean (64)	Caribbean (24)	Caribbean (57)

Participation trends shown in Table 83 indicate higher enrolment by the foreign-born in Math and Science but not in English. The achievement levels of these groups were the same across subject areas. Within the foreign-born group we found the students from Eastern Asia were high achievers in all subjects. Eastern European students also did well in English. Students from the Caribbean region had comparatively low levels of participation and achievement in all three subjects. Participation in math was particularly low for this group.

3 - Policy implications

In this project we addressed the question: How are non-English-speaking and immigrant youth progressing in TDSB high schools? We observed that many newcomer youth are adjusting to the demands of the school and some are even excelling in the system. We also observed that others are encountering difficulties. A first step in improving the reception and integration of these vulnerable youth is to identify which groups are vulnerable as evidenced by low achievement and low graduation rates. The link between graduation and achievement (irrespective of program of study) is assumed and much of our profile of TDSB students was given over to describing student performance in the 'core' curricular subjects of Math, English, and Science. We found one group that consistently excelled in all three subject areas – Chinese speaking students exceeded all other groups, including the native-born reference group, in participation levels and achievement in core university program subjects. We also found several groups that were struggling to adjust to the demands of the high school and its curriculum. Some of these are newcomers. Somali and Spanish speaking students, for example, are relatively recent arrivals

and their families have to settle into the community. Others however are more familiar with Toronto and its institutions, including the schools. The Portuguese community is well established in Toronto but youth from this group do not achieve well in the core subjects and have very high rates of dropout. Similarly, English-speaking youth from the Caribbean region do not achieve high, or even average, marks in Math, Science, or English and they too have high dropout rates.

Previous research has identified several risk factors that affect TDSB students. Brown (2006) reports the following personal and situational factors that are associated with poor graduation prospects:

- being a male student
- entering high school after the modal age
- not remaining in the same secondary school
- having low levels of achievement in secondary school
- living in a low-income neighbourhoods
- attending a school with a low-SES student body

These factors apply to all students including non-English speakers and recent immigrants. Within the limits of the available data we developed profiles of the various language and immigrant groups to determine personal and contextual factors associated with achievement and, additionally, to examine how these factors limit graduation opportunities. We have discussed these in the previous section of 'highlights' and here simply summarize them and comment on those that appear particularly salient in qualifying school performance. We found that all students are placed at risk of low achievement and dropout by several 'risk factors' but these seem to apply with particular force to the vulnerable adolescents we have identified in the non-English speaking group and among English-speaking immigrant youth

Individual differences

In nearly all groups examined, girls' achievement exceeded that of boys. Gender differences are recognised in the general adolescent school population. There may be, however, a cultural overlay among some immigrant youth as gender proportions vary by language spoken and region of origin.

Language competence is obviously a significant barrier to academic engagement and achievement. However, language alone does not explain some of the differences found in immigrant students' school performance. English-speaking adolescents from the Caribbean appear to find formal, classroom learning a difficult task. And those with PSE aspirations who opt for the university program of study perform less well than other newcomer youth.

For non-English speakers, the opportunity to enrol in ESL classes influences graduation prospects. We can only assume ESL participation has a positive effect on achievement although details such as early or late enrolment and program duration must await further research with the data.

School trajectories

How individuals transition from elementary to high-school and then progress through the various secondary level programs of study clearly affects both achievement and graduation. Students who do not enter grade 9 at the age normally associated with the completion of elementary (or middle) school are disadvantaged. This appears to be the result of a deficit in learning – expressed as course-credit accumulation – that results in grade retention and a longer period of study in the elementary school. In the case of non-English speaking immigrant children, this may reflect additional time needed to acquire competence in the language of instruction.

Where students studied prior to entering the TDSB also influences learning. Those who enter directly from a TDSB elementary school appear to find fewer adjustment problems and are able to achieve better results from their studies. Those entering from another jurisdiction have to make a greater adjustment not only to the curriculum and school routines but to their living arrangements and neighbourhood. This would affect immigrant children more than those transferring from another Canadian province or Ontario school district.

The Ontario secondary system is organized in terms of 'programs of study'. In effect, these represent tracks that prepare students for different post-high school educational and occupational paths. Each reflects estimates of a child's preference as well as ability. Most youth are interested in attending university but many favour college and a quicker entry to the workforce. Others wish to bypass the post-secondary system and instead enter the labour market directly. For those,

there are many employer-sponsored training opportunities including a range of apprenticeship programs. Of some importance to the interpretation of achievement and the prediction of graduation is that the courses associated with the various programs of study differ in their level of difficulty. This is, however, less marked in the TDSB because of the variety of courses on offer and some overlap in tracks – e.g. the mixed program of study allows the student to prepare for either university or college.

Family Resources

Income is a measure of a range of family resources that are available to children. We can assume that higher levels of income are associated with higher levels of parental education. These families possess not only material advantage but are able to access forms of cultural and social capital that facilitate their children's school adjustment and success. This relationship is more complicated in the case of immigrant families. Many immigrant parents are highly educated and skilled but are unable to find stable employment. While economically hampered, these parents nevertheless are able to reinforce dispositions in their children that underlie academic effort and success.

School context

The Learning Opportunities Index (LOI) employed in the TDSB provides a general index of the socio-economic status (SES) of the student body in a school. Consistent with the literature, school SES influences the attitudes, aspirations and dispositions of individual students. This works through various mechanisms but peer influence is critical in adolescent culture. For recent non-English speaking and immigrant youth acceptance and friendships are in many ways prerequisite to academic engagement.

The proportion of non-English speaking students in a school was treated as an important contextual factor, given the level of diversity in the TDSB student body. Many students do not speak English as their first language. Where English is the language of instruction in classrooms both teaching and learning are made more difficult. One might assume the potential for mis-communication and a lack of curricular understanding are multiplied in schools in which there is a high proportion of non-English speakers. To examine this issue, we assessed the effects on

graduation rates (and program-of-study choice) of non-English language concentration in schools. The analysis was performed separately for English and non-English speaking groups – with somewhat anomalous results. Using low-concentration schools (0-25%) as a reference, we found no effects for schools with 26% to 75% concentration. However, there was a significant effect for both language groups in schools with high concentrations of over 75% non-English speakers. In the case of non-English speaking groups, we surmise that a high concentration of non-English speaking students offers a cultural and social environment that supports learning sufficient to overcome language barriers. Why English-speaking students would benefit from attending a school in which their fellow students were largely non-English speaking is less clear. While the number of English-speaking students involved were a relatively small proportion of the total English-speaking group (some 8%), the numbers were adequate for reliable statistical analysis.

This study was designed to accommodate the requirements of a pan-Canadian comparison. We nevertheless have been able to profile basic dimensions of vulnerability among non-English speaking and newcomer youth in the TDSB. The identification of vulnerable groups argues for strategic use of resources to improve conditions that contribute to academic engagement and achievement. While our analysis of survey data lacks diagnostic detail we can link our profile with qualitative work that has similarly identified vulnerable immigrant youth in the Toronto region. Koc & Nunes (2000) recently interviewed immigrant adolescents to determine both the barriers they faced and the (implied) opportunities they perceived for successful integration in Toronto schools. It is clear from their assessment that social institutions such as family, school and community are linked in relations or partnerships that intersect to affect the lives of newcomer adolescents. We summarize these below in a list that links individual or personal requirements to one of three key social institutions – family, school, and community that are central to newcomer adolescents' adjustment:

- **Family**

Significant loss of family and friends in migration
Family instability and deprivation
Poverty
Unstable housing
Limited awareness of support services

- **School**

English language deficiencies
Arbitrary school grade placement
Racist and discriminatory experiences in school

- **Community**

Limited employment skills
Confinement to unstable, low-wage employment
Minimal support network
Limited substance abuse assistance

This list provides markers for devising strategies that may encourage greater school engagement and lower dropout rates among specific immigrant groups from diverse countries of origin. For instance, students from the Caribbean are significantly more likely to enter school one year late, live in alternate family structures, find themselves placed in non academic streams and be at risk of not completing their course of study. Many of these risk factors are responsive to change by working effectively with schools and family. Special transition year programs could be considered for students that enter a school late in order to meet their needs and improve their adaptation to the social and academic life of Canadian schools. In this instance, the use of a 'buddy' or 'mentor' systems found to work well in the Host program funded by Citizenship and Immigration Canada could be introduced and periodically evaluated. School counselors could be called upon to work alongside of buddies and mentors to address issues of adaptation and school risk factors noted in our analysis of dropout. Another program that has had very promising results is Pathways to Education. This program started in the TDSB around the time of this cohort study in the Regent Park area, and has expanded to several other areas in Toronto such as Lawrence Heights. This program looks at all students going from grade 8 into grade 9 and provides an arsenal of supports for all students in the area while they are in Toronto secondary. The program is not targeted at immigrant youth but it is worth studying to see what would work best with high-risk immigrant youth populations. By working closely with the families, some success may be achieved in supporting and encouraging these vulnerable youth.

The voices of immigrant youth and the current institutional responses (summarized above) represent a call for further detailed investigation of the process of school integration by immigrant adolescents of increasingly diverse cultural and linguistic heritage. Our analysis complements this existing work and points to much needed future research.

CHAPTER 4*

VANCOUVER SITE REPORT

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4.1 INTRODUCTION

4.1.1 Context

According to the 2006 census, the Vancouver census metropolitan area contained the second largest amount of immigrants in Canada in 2007 (Statistics Canada, 2007). The British Columbia Ministry of Education does not collect data that identifies immigrant students; however, 10% (n= roughly 63,000) of all students in the province were designated ESL, a reasonable, if limited, proxy for children of immigrants, in 2007-2008. This 10% excludes 'ex-ESL' and 'never ESL' immigrant students, however.

As the census figure indicates, immigrant students are not evenly distributed across the province. Most settle in one of 12 school districts in the Metro Vancouver area; schools in this region are commonly composed predominantly or significantly of students for who English is not a first language. The Vancouver School Board reports 58% of its students have a home language other than English (Vancouver School Board, n.d.).

Unlike Toronto's mega-city, the Metro Vancouver region is divided into separate political jurisdictions. School district boundaries are similar to, but not perfectly co-extensive with political ones. To ensure comparability with Toronto and Montreal, the Metro Vancouver site aggregates data from 12 school districts characterized by significant immigrant student populations. They are: Abbotsford, Langley, Surrey, Delta, Richmond, Vancouver, Burnaby, New Westminster, Coquitlam, Maple Ridge, North Vancouver, and West Vancouver. Roughly 90 % of all BC students attend public schools. As such these schools represent the full spectrum of socio-economic strata, unlike Montreal, where public schools are disproportionately populated with students from lower socio-economic backgrounds.

The *Conseil Scolaire Francophone* (CSF) offers French-medium schooling to students with at least one francophone parent within the geographic boundaries of the above districts. Some immigrant students attend these schools but they are not analysed here. Our criteria would have included under 200 additional students from CSF schools, had they been included.

BC students typically enter secondary school in grade 8; in some districts this includes junior secondary from grades 8 to 10 and then a change of schools to senior secondary for grades 11 and 12. However, school structure in some districts, like Coquitlam and New Westminster, includes middle schools encompassing grades 6 to 8, and secondary schools encompassing grades 9 to 12. Because grade 8 is the most common starting point for secondary school, a grade 8 cohort is examined for this study.

For students who have neither been retained nor skipped a grade, grade 8 begins in the September of the year they turn 13. A typical progression through school would culminate in graduation in June of the year they turn 18. This is referred to as 'graduation in five years' in this report. It is common practice for the BC Ministry of Education to report six year graduation rates, in recognition that students often require an extra year to fulfill graduation requirements. It is difficult but not impossible to remain in high school for a seventh year; students may not enroll in September if they have already reached age 19, unless they have special permission from the principal.

The grade 8 cohort of 1999 would typically graduate in June of 2004. These students were required to begin collecting credits toward graduation in grade 11. There were, and are, many paths to graduation, but no formal 'tracks'. The only mandatory grade 12 course requirement was one of (typically) two Language Arts 12 options. Students could accumulate the remainder of requisite credits from a variety of other courses.

Nonetheless, certain courses have always provided university access; others, access to post secondary vocational programs; and still others, fulfillment of graduation requirements, but little in the way of post secondary entrance requirements. The courses providing university access were, and are, academic – for example, History 12, Physics 12, Mathematics 12 - and provincially examinable. Entry to one of BC's three major university arts or science programs would typically require English 12 and three other provincially examinable subjects[1].

[1] Both graduation and university entrance requirements in BC have changed since this cohort's progression through school.

4.1.2 Related studies

Until recently little was known about immigrant student trajectories through BC schools. However, four studies have recently emerged to address this knowledge gap. While differences in definitions, populations, and methodologies appear to render some contradictory results, careful examination of each study reveals clear trends.

Gunderson examined a sample of 2,213 immigrant students; he compared them to a random sample of 5,000 Canadian born students. The immigrant group was disaggregated by ethno-cultural background and immigration status. Outcomes measured included GPAs in, and disappearance rates over time from, English, mathematics, science, and social studies from grades 8 to 12.

While GPAs across subjects and grade levels were similar between all immigrants and Canadian born students, Gunderson found stark differences in the achievement of different ethno-cultural groups. Mandarin, and to a lesser degree Cantonese, speakers dramatically outperformed native-born Canadians across all subjects at all grade levels with the exception of grade 12 English and senior social studies . Other groups – Indian, Vietnamese, Tagalog (Philippino) and Spanish speaking- generally performed below Canadian born students across most subjects and grades. Outcomes for the latter two groups were especially poor. When disaggregated by immigration status, children of entrepreneurs typically had higher GPAs than regular immigrants across grade levels and subjects, though senior English and social studies were exceptions. In turn, regular immigrants tended to have higher GPAs than refugees across grades and subjects.

One of Gunderson's highly publicized findings was the disappearance rate of immigrant students from examinable subjects. By grade 12, English retained 45% of its grade 8 population, mathematics 32%, science 25%, and social studies 23%.When disaggregated by immigration status, disappearance rates were higher among refugees and regular immigrants than among entrepreneurs. Further, the numbers of Spanish and Vietnamese remaining in grade 12 were extremely low. Gunderson argues the school system favours the high SES Chinese language groups that can afford to hire multiple private tutors after ESL support is withdrawn, and under-serves immigrants from disadvantaged backgrounds.

Pirbhai-Illich's doctoral dissertation examined all the students who required ESL service, who entered the Vancouver school board in grade 8 in 1996 (n = 184). Sixty-four percent eventually achieved graduation within seven years of 1996. Twenty-four of these percentage points depended upon pathways that included time in an adult learning centre after the student exited high school. A series of correlational tests proved English proficiency at the time of grade 8 entry, and immigration status, were the variables most strongly associated with graduation and performance. Similar to Gunderson (2007), students from 'entrepreneur' class families graduated more frequently than those from other immigration statuses.

Garnett, Adamuti-Trache & Ungerleider (2008) accessed data from a Metro Vancouver school board for the graduating class of 2002 in order to uncover the differences among students for whom English was not a first language (ENFL) and who had received ESL support at some time in their educational careers (n=2,679) Outcomes were compared to native English speakers (n=1,019). Students had attended one of the board's 18 secondary schools.

Garnett *et al*. discovered ENFL students participated at much higher rates than English speakers in Math 12, Physics 12 and Chemistry 12. These striking ENFL participation rates masked wide variation among ethno-linguistic subgroups. Chinese and Korean participation rates and mean scores were very high across courses, much higher than other ENFLs and NESs. By contrast, South Asian, Tagalog and Spanish speakers all participated less frequently and performed below the NES baseline.

Logistic and multiple regression confirmed the presence of the ethnic effect when controlling for SES and English proficiency. Nonetheless, students attending high SES schools had 1.4-1.7 times better odds than students at low SES schools of participating in Math 12, Physics 12, and Chemistry 12.

Garnett (2008) examined the participation and performance of British Columbia's 1997 grade 8 cohort across academic subjects and through to graduation or non-completion. He compared the results of ESL students (n=7,527) with native English speakers (NES) (n=37,612), disaggregating the former group by home language and English proficiency, and both groups by gender, SES, and school level variables including school SES and demographic composition.

Garnett found that, in aggregate, ESL students graduated, within both five and six years of beginning grade 8, more frequently than English speakers. However, this positive result for ESL students owed mostly to the high graduation rates of the large Chinese population. The five-year graduation rates of other ethno-cultural groups, except South Asians, were somewhat, or substantially, below English speakers. Vietnamese and Spanish rates were well below English speakers. Six-year graduation rates reduced graduation gaps, and allowed most ethno-cultural groups to approach or exceed English speakers outcomes. However, Vietnamese and Spanish remained below the NES baseline.

Even beginner ESL students equaled English speakers five-year graduation rates and exceeded NES six-year rates. Again though, the high performance of the Chinese students masked average and poor outcomes of the less numerous groups. The five-year rates of Philippino, Vietnamese and Spanish beginner ESL were far below the NES baseline.

Participation and performance in academic courses told a similar story. Chinese and Korean students consistently enrolled most frequently and achieved the highest mean scores in mathematics, physics and chemistry. Enrolment and performance of Persians was typically also high. Usually outcomes for these three groups were higher -enrolment was often dramatically higher – than they were for NESs. South Asian, Vietnamese, Spanish and Philippinos typically could not equal NES scores, although their participation rates sometimes exceeded NESs in mathematics and chemistry. Outcomes were similar in the humanities though participation rates among ESL students were lower than they were in the sciences.

Overall, the results showed that among students who had been in the school system a minimum of five years, and usually longer –most ethno-cultural groups did not achieve performance outcomes equal to NESs, though their desire to participate in academic courses as indicated by high enrolment levels was strong.

Contrary to Gunderson's implications, cross-tabulations showed, except among the Spanish, estimated family income had little effect on graduation rates, or English 12 (the typical graduation requirement) participation rates and mean scores. SES had a somewhat stronger effect on Math 12 mean scores, especially among the Spanish, Vietnamese and Philippinos. However,

even these relatively large differences failed to eradicate the predictive ability of ethno-cultural background. For example, the high income Spanish group still produced lower Math 12 mean scores than the low income Chinese group.

Subsequent multivariate analysis confirmed the predictive power of ethno-cultural background, gender and English proficiency across most outcomes (graduation, participation and performance across academic subjects). SES and school level effects were by contrast, weak and/or insignificant. While ethno-cultural effects were generally significant in regression models, some negative ethno-cultural effects, e.g. Philippino and Vietnamese, were substantially ameliorated by controlling for other factors, most notably English proficiency as indicated by reading comprehension.

Toohey and Derwing (2008) have reported similar findings. The same 'ranking' of home language groups of senior high school ESL students obtains in marks across academic subjects and graduation rates. Overall though, their low English proficiency population exhibits lower mean scores and graduation rates than the other studies above. Their tenuous SES variable has limited predictive ability, though it appears the higher performing groups are of higher SES backgrounds.

Themes

Common themes emerge from the five studies. First, trajectories and outcomes vary widely among ethno-cultural subgroups typically invisible under aggregate the labels 'ESL' or 'immigrant.' The dominant patterns include very high achievement among Chinese speakers, and to some degree among Korean speakers. Conversely, Spanish speakers appear particularly vulnerable to poor outcomes, as to lesser degrees, do Vietnamese and Philippino students. The large South Asian population appears to graduate frequently, but less often on an academic path.

Second, limited English proficiency in high school is correlated with lower graduation rates among most, but not all, groups. Chinese are resilient to limited English proficiency barriers. While Garnett (2008) showed high "ESL-ever" graduation rates, and Garnett *et al.* (2008) showed extraordinary academic participation rates among ENFL, students populations in both studies were composed largely of students who had clearly achieved approximate grade level

English proficiency by high school. Graduation rates for Beginner ESL students were much lower (Garnett, 2008). And, Pirbhai-Illich's 64% graduation rate was achieved by students who needed ESL service in high school.

Third, the role of SES is unclear. Students at high SES schools do participate in academic classes more frequently in Garnett *et al* (2008). However, SES has little effect on graduation rates among most ethno-cultural groups in Garnett (2008), and it accounts for little variation in participation and performance in statistical models. Spanish are an exception. SES is insignificant in Pirbhai-Illich and statistically unproven as a predictor in Gunderson. Nonetheless, groups exhibiting the most persistent educational vulnerability are undoubtedly in lower SES brackets, and the SES indicators in all the studies are limited.

Fourth, definitions matter. Outcomes differ depending if the target population is defined by home language, the need for ESL service, or the need for extensive ESL service after grade 8. Outcomes appear different if the target population is a grade 8 cohort or a grade 12 cohort. 'Disappearance' from academic courses is different than dropout from school. The following description of this study's cohort should be kept in mind when reading the study.

4.2 EDUCATIONAL PATHWAYS AND ACADEMIC PERFORMANCE OF NON-ENGLISH SPEAKERS

This section first describes the characteristics of the target and comparison groups. It then cross tabulates their graduation, and course participation and performance. Following the descriptive data, multi-level regression models predict graduation and enrolment in mathematics.

4.2.1 Descriptive data presentation

This section describes the characteristics of the target group - Metro Vancouver's1999 grade 8 cohort of students who did not have English as their language used at home (n=9,039), subgroups of the target group as defined by their home languages, and the comparison group, students who use English at home (n=15,034). In descending order of population, the subgroups are: Chinese (n=3,573), Punjabi (n=1,332), Philippino (n=516), Hindi (n=368), Korean (n=375), Spanish (n=363), Vietnamese (n=358), Persian (n=319), Russian (n=139) and Arabian (n=103). The remainder of the non-English speakers were not analysed separately, though they remained

in total non-English group. The first nine descriptive tables describe demographic, schooling process and school characteristic information. The following six tables describe graduation rates, and participation and performance in 'select' or 'high track' academic courses that provide university access, and 'low-track' courses which do not.

4.2.1.1 Characteristics of the target and comparison groups and of subgroups

1 - Enrolment in public vs. private schools

In BC, private, or 'independent' schools are partially funded by the government and include both elite university-preparation schools with high tuitions and denominational schools, often Catholic, with substantially lower tuitions. Although this variable, technically, is a school context variable, we present it at the beginning of the report, as it is needed to understand many of the following tables in which data for the public and private sector are often contrasted.

Twelve percent of all native English speakers attended private schools (Table 84). By contrast, only 9% of the target group did. The largest proportion of private school enrolees among the identified ethno-cultural groups was within the Philippinos. Very likely this reflects the relatively strong Christian faith in this community. It is noteworthy that one in five "other' home language speakers also enrolled in private schools. The lowest rates were among the Hindi and the Persian group. However, no ethno-cultural group, including English speakers had particularly high rates of private school enrolment in Metro Vancouver.

Table 84
Language used at home: Enrolment in public or private schools, Vancouver

Language used at home	Public		Private		Total
	N	%	N	%	N
Non-English Speakers					
All	8,199	91	840	9	9,039
Subgroups					0
Chinese	3,367	94	206	6	3,573
Punjabi	1,226	92	106	8	1,332
Philippino	432	84	84	16	516
Hindi	368	98	**	**	368
Korean	350	93	25	7	375
Spanish	324	89	39	11	363
Vietnamese	343	96	15	4	358
Persian	319	98	**	**	319

Russian	139	96	**	**	139
Arabic	103	90	11	10	114
English Speakers	13,249	88	1,785	12	15,034

** Below 10 students.

2 - Socio-demographic characteristics

Gender

Overall, gender distribution slightly favours males in both the target and comparison group (see Table 85). Language subgroups exhibit some minor variations: there were more females among Spanish and especially Arabic speakers; and, the proportion of Vietnamese males was greater than any other subgroup.

Table 85
Language used at home: Gender, Vancouver

Language used at home	Male		Female	
	N	%	N	%
Non-English Speakers				
All	4,650	51	4,389	49
Subgroups				
Chinese	1,849	52	1,724	48
Punjabi	688	52	644	48
Philippino	267	52	249	48
Hindi	189	50	188	50
Korean	188	50	187	50
Spanish	178	49	185	51
Vietnamese	198	55	160	45
Persian	171	52	156	48
Russian	80	55	65	45
Arabic	51	45	63	55
English Speakers	7,800	52	7,234	48

Socio-economic status

As described in section 1.3.1.1, socio-economic status was estimated by matching student postal codes to census data describing median income levels for each postal code. Income levels are divided into quintiles. Overall the target group was more heavily represented in the lower quintiles than the comparison group (Table 86a). 55% of non-English speakers were in the lowest two quintiles compared to only 29% of English speakers. Conversely, almost half of

English speakers were in the top two quintiles, compared to less than one quarter of non-English speakers.

Among the subgroups, Korean and Persian speakers were most heavily represented in the top two quintiles, though neither group was as heavily represented as English speakers. About one quarter of the proportion of Chinese and Arabic speakers were in these quintiles. The remaining six groups, particularly the Vietnamese and the Spanish had low representation in high-income quintiles. In fact, over three quarters of Vietnamese were in the two lowest income quintiles, as were roughly two-thirds of the Spanish, Russian, Hindi, and Philippino speakers.

Table 86a
Language used at home: Median family income in EA of residence, Vancouver

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-English Speakers										
All	2,714	30	2,288	25	1,687	19	1,133	13	1,000	11
Subgroups										
Chinese	1,063	30	964	27	641	18	396	11	482	13
Punjabi	278	21	348	26	356	27	216	16	91	7
Philippino	192	37	141	27	84	16	65	13	21	4
Hindi	135	36	103	27	53	14	46	12	31	8
Korean	74	20	65	17	85	23	50	13	88	23
Spanish	140	39	91	25	56	15	15	4	**	**
Vietnamese	174	49	100	28	38	11	37	10	**	**
Persian	107	33	69	21	53	16	25	8	68	21
Russian	63	43	33	23	26	18	15	10	**	**
Arabic	29	25	23	20	33	29	16	14	10	9
English Speakers	1.942	13	2,430	16	3,010	20	3617	24	3,652	24

** Below 10 students.

A comparison of income levels across public and private school systems revealed that, within the target group, there was heavier representation in the low income quintiles in the public system than in the private system (see Tables 86b and c). Logically, there is heavier representation in the high income quintiles in the private system than in the public system. However, the story changed in the comparison group; it had lower proportions of low income members in the public

system than it did in the private system. And, it had (very slightly) lower proportions of high income members in the private system than in the public system. This mirror effect may result from greater ease within the English speaking population accessing desired public schools. There may also be higher proportions of low income target group members availing themselves of denominational schools, categorized as 'independent' or 'private' in the BC data.

Table 86b
Language used at home: Median family income in EA of residence (public sector), Vancouver

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-English speakers	2,515	31	2,110	26	1,532	19	994	12	905	11
English speakers	1,659	13	2,129	16	2,683	20	3,213	24	3,236	24

Table 86c
Language used at home: Median family income in EA of residence (private sector), Vancouver

Language used at home	Lowest		Low		Medium		High		Highest	
	N	%	N	%	N	%	N	%	N	%
Non-English speakers	199	24	178	21	155	18	159	19	125	15
English speakers	283	16	301	17	327	18	404	23	416	23

3 - Schooling process variables

Age when entering high school

Almost all students entered grade 8 at the appropriate age (see Table 87a). Ninety three percent of both English speakers and non-English speakers entered on time. Koreans had by far the largest number of late entries, though this observation may result from the Korean system of counting age, whereby students are 'one year old' upon being born. Beyond the Koreans, the Spanish and Philippinos had the greatest proportions of late entries; Russian, Hindi and Chinese speakers had the least.

Table 87a
Language used at home: Age when entering high school, Vancouver

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-English Speakers								
All	106	1	8,433	93	487	5	12	0
Subgroups								
Chinese	25	1	3,416	96	131	4	**	**
Punjabi	25	2	1,235	93	67	5	**	**
Philippino	**	**	468	91	47	9	**	**
Hindi	**	**	362	96	10	3	**	**
Korean	**	**	323	86	50	13	**	**
Spanish	**	**	332	91	26	7	**	**
Vietnamese	**	**	338	94	19	5	**	**
Persian	**	**	303	93	17	5	**	**
Russian	**	**	135	93	**	**	**	**
Arabic	**	**	103	90	**	**	**	**
English Speakers	110	1	14,046	93	501	3	15	0

** Below 10 students.

Both English and non- English speakers had slightly larger proportions of students entering the private system both early and late (see Tables 87b and c) This may result partially from a greater perceived ability in the private system to accommodate developmentally different students.

Table 87b
Language used at home: Age when entering high school: public sector, Vancouver

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-English Speakers	82	1	7,698	94	409	5	**	**
English Speakers	100	1	12,443	94	678	5	22	0

** Below 10 students.

Table 87c
Language used at home: Age when entering high school: private sector, Vancouver

Language used at home	Early		On time		1 year late		2 years late or more	
	N	%	N	%	N	%	N	%
Non-English Speakers	24	3	735	88	78	9	**	**
English Speakers	39	2	1,603	90	140	8	**	**

** Below 10 students.

Level of entry into the school system

Not surprising in a study of the grade 8 cohort, the overwhelming majority of students entered the BC system prior to beginning secondary school (Table 88). Overall, a slightly larger proportion of English speakers entered the system in elementary school, as might be expected. Additionally, very few students from any background arrived from outside the Metro Vancouver region.

Arrival in grade 8 may be a risk factor if the student does not have time to develop English skills, particularly if he or she is deficient in first language literacy as well. The greatest proportions of arrivals in grade 8 were among Russians and Koreans. Hindi and Spanish speakers saw the smallest proportions arrive post elementary.

Table 88
Language used at home: Level of entry into the school system, Vancouver

Language used at home	In primary in Vancouver		In primary in BC		Newcomers to BC	
	N	%	N	%	N	%
Non-English Speakers						
All	8,427	93	40	0	572	7
Subgroups						
Chinese	3,339	93	**	**	229	7
Punjabi	1,302	98	**	**	24	2
Philippino	479	93	**	**	34	7
Hindi	371	98	**	**	**	**
Korean	289	77	**	**	82	28
Spanish	350	96	**	**	11	3
Vietnamese	336	94	**	**	19	6
Persian	284	87	**	**	41	14
Russian	110	76	**	**	35	32
Arabic	104	91	**	**	**	**
English Speakers	14,593	97	248	2	193	1

** Below 10 students.

Frequency of school changes

As immigrant families find residences in their new country, we might expect non-English speakers to experience frequent school changes. However, Table 89 shows they experienced 'no school changes' almost exactly as frequently as English speakers. Moreover, non-English speakers experienced multiple changes slightly less frequently than English speakers.

Nonetheless, Chinese, Punjabi, Philippino and other were the only subgroups to experience no change similarly or more frequently than the comparison group. Half or more than half of all other home language groups, except Hindi, experienced at least one school change. And approximately one quarter of Russian and Spanish speakers experienced multiple changes. The average number of school changes per student indicates the likelihood of school change among the different groups. Again, the most likely to experience school changes appeared to be,

Russian, Spanish, Vietnamese, Korean and Persian. Only the four most stable groups listed at the top of the paragraph experienced fewer school changes, on average, than the comparison group.

Table 89
Language used at home: Frequency of school changes (within 4 years of entering grade 8), Vancouver

Language used at home	No school change		At least one school change		2 school changes or more	
	N	%	N	%	N	%
Non-English Speakers						
All	5,483	61	2,488	28	1,068	12
Subgroups						
Chinese	2,433	68	898	25	242	7
Punjabi	797	60	373	28	162	12
Philippino	325	63	135	26	56	11
Hindi	201	53	120	32	56	15
Korean	169	45	149	40	57	15
Spanish	171	47	100	28	92	25
Vietnamese	178	50	112	31	68	19
Persian	156	48	110	34	61	19
Russian	62	43	50	34	33	23
Arabic	56	49	39	34	19	17
English Speakers	9,358	61.5	3,455	23	2,396	15

ESL courses in high school

The reception of ESL classes in high school is a rough indicator of limited English proficiency which may predict deleterious outcomes (Rumberger & Larson, 1998). On average, slightly more than one quarter of all non-English speakers required at least one ESL class in high school. Many students had apparently approached or reached grade level English proficiency by grade 8 (Table 90).

Again, levels of proficiency were unevenly distributed among the ethno-cultural groups. Over half of Koreans required an ESL class, followed by more than four out of ten Russians and Persians, and just over one third of all Chinese. Least likely to receive ESL classes were Hindi, Vietnamese, Punjabi and Spanish; fewer than one in five among these groups took ESL in high school.

Table 90
Language used at home: ESL classes during high school (grade 8 or after), Vancouver

Language used at home	No		Yes	
	N	%	N	%
Non-English Speakers				
All	6,514	72	2,525	28
Subgroups				
Chinese	2,272	64	1,301	36
Punjabi	1,123	84	209	16
Philippino	367	71	149	29
Hindi	338	90	39	10
Korean	165	44	210	56
Spanish	300	83	63	17
Vietnamese	302	84	56	16
Persian	185	57	142	43
Russian	79	54	66	46
Arabic	81	71	33	29

4 - School characteristics

Concentration of non-English speakers

Table 91a describes the proportions of non-English speakers at the school in which the target group enrolled. The Vancouver data is limited to the cohort only, therefore, these figures reflect the concentrations of grade 8 students at the school in the year of enrolment; entire school populations are not known.

The two right-hand columns indicate 50% of all non-English speakers enrolled at schools where over half the population were also non-English speakers. Strikingly, only 13% of all English speakers enrolled at such schools. In fact, nearly half of English speakers enrolled in schools where less than one quarter of the population was from the target group. Thus, clustering of English speakers at some schools and of non-English speakers at other appears to be relatively high in the Vancouver metropolitan area.

Vietnamese and Chinese were most likely to attend schools with the highest proportion of other non-English speakers. Nearly 7 of 10 Vietnamese attended a school where over half the population had a first language other than English. Many Hindi, Russian and Spanish also attended such schools. By contrast, only about one quarter of Koreans and Persian attended schools with such high proportions of non-English speakers.

Table 91a
Language used at home: Concentration of non-English speakers in school attended, Vancouver

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-English Speakers								
All	1,995	22	3,305	37	3,471	38	1,104	12
Subgroups								
Chinese	323	9	1,032	29	1,802	50	416	12
Punjabi	158	12	643	48	329	25	202	15
Philippino	47	9	206	40	191	37	72	14
Hindi	20	5	150	40	127	34	80	21
Korean	93	25	186	50	86	23	10	3
Spanish	58	16	137	38	128	35	40	11
Vietnamese	28	8	84	23	143	40	103	29
Persian	70	21	176	54	76	23	**	**
Russian	19	13	56	39	68	47	**	**
Arabic	21	18	51	45	37	32	**	**
English Speakers	7,404	49	5,688	38	1,786	12	156	1

** Below 10 students.

Tables 91b and c below indicate the difference between private and public school enrolment among different proportions of non-English speakers. In public schools, 55% of the target group attended schools with a proportion of non-English speakers greater than 50%. Only 40% of non-English speakers in private schools enrolled among similar proportions, although 25 of these percentage points were in the highest category of ethnic concentration in the private system, whereas only 11 of the percentage points were found in the same category in the public system.

By contrast, 86% of English speakers in the public system attended schools with a proportion of non-native English speakers under 50%. In the private system, 94% did. In sum, the private system modestly amplifies the degree of ethnic clustering that already occurs in the public system.

Table 91b
Language used at home: Concentration of non-English speakers in school attended: public sector, Vancouver

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-English Speakers	998	12	2,962	36	3,345	41	894	11
English Speakers	6,425	48	4,983	38	1,696	13	145	1

Table 91c
Language used at home: Concentration of non-English speakers in school attended: private sector, Vancouver

Language used at home	0 - <25%		26 - <50%		51 - <75%		76 - 100%	
	N	%	N	%	N	%	N	%
Non-English Speakers	161	19	343	41	126	15	210	25
English Speakers	979	55	705	39	90	5	11	1

Enrolment in a socio-economically challenged school

Table 92 describes the distribution of students at disadvantaged schools. Because jurisdictional definitions of disadvantage were not available, the Vancouver site followed a formula inspired by the Quebec classification of schools for purposes of extra funding used by the Montreal team. Schools where the average income of the families of students attending was in the bottom three deciles of income according to census 2001 data were labeled ‘disadvantaged’.

Exactly double the amount of non-English speakers than English speakers attended disadvantaged schools. The largest proportions attending disadvantaged schools were among the Vietnamese, Hindi and Punjabi. The least likely to attend disadvantaged schools were Koreans and Persians. These are the only two groups that attended disadvantaged schools less frequently than English speakers.

Table 92
Language used at home: Enrolment in a socio-economically challenged school, Vancouver

Language used at home	No		Yes	
	N	%	N	%
Non-English Speakers				
All	5,346	58	3,941	42
Subgroups				
Chinese	2,330	63	1,375	37
Punjabi	461	34	880	66
Philippino	258	49	269	51
Hindi	129	34	251	66
Korean	347	87	53	13
Spanish	183	49	193	51
Vietnamese	108	29	266	71
Persian	265	80	65	20
Russian	110	74	38	26
Arabic	84	72	32	28
English Speakers	12,294	79	3,262	21

4.2.1.2 Comparative educational pathways and academic performance

1 - Graduation rates

Table 93a describes the graduation rate for each group. The two 'on- time' columns show the numbers and percentages of those who began grade 8 in September 1999 or after and graduated by June 2004 or in other words, within five years. In aggregate, non-English speakers graduated on time slightly more frequently than English speakers (75% vs. 71%). This aggregate statistic masks substantial variation, however. Only 55% of Spanish speakers graduated on time. In fact, 7 of the 11 ethno-cultural groups (including 'other', the composite of remaining home language groups) graduated on time less frequently than English speakers. It appears the high graduation rates of the numerous Chinese, and to a slightly lesser degree Punjabis, increased the aggregate target rate.

The next two columns show the numbers and proportion of students who graduated by June 2005 and June 2006. Allowing non-English speakers extra time to graduate appears advantageous in a

number of language groups. For example, only 60% of Arabic speakers graduated on time, 11 percentage points lower than the English speaker baseline. By contrast, two years later 67% had graduate, eight percentage points under the native English speaker baseline. Similarly, the graduation rate of Persian speakers rose seven percentage points over two years and narrowed the gap with native English speakers by three percentage points. This pattern is fairly consistent among the groups who graduated on time less frequently than native English speakers.

A non-trivial number from each group is still enrolled in school but has not achieved graduation, by two years after the expected graduation date. This result is similar to Garnett (2008) and indicates a desire to achieve graduation. In most groups, from just under 10 to over 15 %, in the case of the Spanish, of their population has not left school even when not graduating within two years of the expected date.

The final column indicates students who left the system before grade 12. These students may have dropped out, but in the case of students who left in early grades, it is reasonable to assume they moved from BC and subsequently disappeared from the data. These students may have graduated elsewhere. Table 93c examines this phenomenon in more detail.

Table 93a
Language used at home: Graduation rates and educational pathways, Vancouver

Language used at home	Graduated within jurisdiction						Still in the system	Graduated beyond jurisdiction within BC		Absent
	On time		1 year after expected		2 years after expected					
	N	%	N	%	N	%	N	N	%	N
Non-English Speakers										
All	6,765	75	462	5	**	**	358	90	1	529
Subgroups										
Chinese	2,958	83	157	4	**	**	110	59	2	124
Punjabi	1,021	77	92	7	**	**	45	18	1	43
Philippino	385	75	17	3	**	**	31	**	**	30
Hindi	232	62	25	7	**	**	24	**	**	18
Korean	271	72	24	6	**	**	10	11	3	40
Spanish	200	55	20	6	**	**	34	**	**	41
Vietnamese	224	63	18	5	**	**	18	**	**	46
Persian	216	66	23	7	**	**	19	**	**	28
Russian	95	66	5	4	**	**	13	**	**	10

Arabic	68	60	8	7	**	**	**	**	**	17
English Speakers	10,617	71	645	4	12	0	624	419	3	943

** Below 10 students.

If we look at the final cumulative graduation rate (see Table 93b), which includes students who graduated outside of Metro Vancouver but within BC, 81% of non-English speakers graduated compared to 78% of English speakers. Six of the ten groups had lower graduation rates than English speakers. Chinese graduation rates were the highest, Spanish the lowest. Spanish graduation rates were 28 percentage points below Chinese. A small proportion of each group graduated outside the Metro Vancouver jurisdictions. Most often n<10, so the cell is suppressed, but three percent of Koreans left the jurisdiction to graduate.

Table 93b
Language used at home: Cumulative graduation rates two years after expected, Vancouver

Language used at home	Cumulative graduation	
	Within jurisdiction (%)	Within BC (%)
Non-English Speakers		
All	80	81
Subgroups		
Chinese	87	89
Punjabi	84	85
Philippino	78	79
Hindi	69	71
Korean	78	81
Spanish	61	61
Vietnamese	68	68
Persian	73	75
Russian	69	73
Arabic	67	73
English Speakers	75	78

2 – Estimation of out migration rate

Table 93c provides a sense of how many students not shown as graduating in Table 93a, may in fact have simply left BC for other jurisdictions, where they may or may not have graduated. It is not likely many students dropped out before enrolling in grade 10, for example. Therefore the

Spanish graduation rate could be up to eight percentage points higher than it appears. It is more likely that high proportions of Arabic and Vientamese also out migrate rather than dropout. Only Chinese, Punjabi and Hindi out migrate at lower rates than English speakers.

Table 93c
Language used at home: Estimation of outmigration, by year, Vancouver

Language used at home	After Grade 8 (%)	After Grade 9 (%)	After Grade 10 (%)	After Grade 11 (%)	Total cumulative rate (%)
Non-English Speakers					
All	2	1	1	2	6
Subgroups					
Chinese	1	1	1	1	4
Punjabi	1	1	1	1	3
Philippino	2	1	2	2	6
Hindi	1	1	1	2	5
Korean	3	3	3	2	11
Spanish	3	3	3	4	13
Vietnamese	4	2	2	4	12
Persian	2	3	1	4	9
Russian	1	3	1	3	8
Arabic	6	4	4	3	17
English Speakers	1	1	1	3	6

3 - Graduation by sector (private vs. public)

English speakers and non-English speakers appeared to be on equal footing in the private system. Their ‘on time’, ‘one year late’, and ‘two year late’ graduation rates all equal each other (see Table 94). In public schools the aggregate non-English speakers graduation rate consistently modestly exceeds English speakers. Private school rates consistently exceed public school rates.

Table 94
Language used at home: Graduation by sector (public vs. private), Vancouver

Language used at home	On time (%)		1 year late (%)		2 years late (%)	
	Public	Private	Public	Private	Public	Private
Non-English Speakers	81	90	87	93	87	93
English Speakers	78	90	83	93	83	93

4 - Participation and performance in selected topics

Graduation is the most important K-12 educational attainment. Nonetheless, the courses in which students enrol and the marks they subsequently receive substantially mediate their further educational opportunities. It is particularly interesting to contrast the enrolment in "high" and "low" track academic courses. Although the BC curriculum includes no formal tracks, we designated the courses that grant university access to most Canadian university programs as 'high,' and the classes that do not as 'low".

English

All students in BC must complete a Language Arts 12 course to graduate. Most students enrol in English 12, the course that provides university access. Despite its 'high track' designation, it is not an 'elite' course. By contrast, Communications 12, the non-university bound option, is usually only taken by students particularly challenged by academics.

Table 95a shows, in aggregate, higher proportions of non-English than English speakers enrolled in English 12. As with graduation rates and mathematics, this number was inflated by very high participation rates among the numerous Chinese. Spanish and Vietnamese participation rates were well below the comparison group baseline. Hindi and Arabic speakers also participated less frequently than English speakers. Nonetheless, every other language group exceeded English speakers in English 12 participation.

English speakers generally achieved higher mean scores than non-English speakers. Only Chinese and Russian scores equalled or exceeded them. Nonetheless, in most cells the difference is trivial, one to three percentage points. Gaps between English speakers and Punjabi, Spanish and Hindi are a little wider but not much. All groups have very high English 12 success rates. Overall, the participation and performance of most non-English speakers in English 12 is impressive, given the advantages that common sense might attribute to English speakers in this subject.

Table 95a
Language used at home: Participation and performance in high track English, Vancouver

Language used at home	Participation		Average score (%)
	N	%	
Non-English speakers			
All	7,139	79	72
Subgroups			
Chinese	3,170	89	73
Punjabi	1,048	79	69
Philippino	385	75	70
Hindi	243	64	67
Korean	308	82	72
Spanish	206	57	69
Vietnamese	226	63	71
Persian	249	76	71
Russian	105	72	75
Arabic	74	65	70
English Speakers	10,664	70	73

Far fewer students participated in Communications 12 than English 12, as Table 95b (see below) indicates. English speakers fell roughly in the middle of all groups participating in this low track course. Hindi, Vietnamese, Punjabi and Spanish all enrolled slightly more frequently; Persian, Russian, Korean and Chinese enrolment rates in this class were much lower and Philippinos a little lower than English speakers. Arabic and Other were the same.

Table 95b
Language used at home: Participation and performance in low track English, Vancouver

Language used at home	Participation		Average scores (%)
	N	%	
Non-English Speakers			
All	726	8	63
Subgroups			
Chinese	133	4	64
Punjabi	176	13	61
Philippino	49	9	67
Hindi	54	14	64
Korean	19	5	56
Spanish	44	12	63
Vietnamese	49	14	62
Persian	21	6	68
Russian	**	**	67
Arabic	12	11	62
English Speakers	1,730	11	66

** Below 10 students.

As expected in a course enrolled largely of less academically inclined students, average scores were lower for all groups than they were in English 12. Nonetheless, despite a three percentage point English speaker advantage over all non-English speakers, the marks were fairly evenly distributed among groups, and should be interpreted cautiously due to small cell size in many of the groups. The only mean score that stands out is the small number of Korean students, ten percentage points below the comparison group baseline. All other groups were within five percentage points of English speakers; three groups exceeded their scores.

Math

Table 96a indicates enrolment and marks in Principles of Math 12, the terminal mathematics course for students planning to enter most university programs. Non-English speakers participation rates nearly doubled the rate of English speakers. There is substantial variation under this aggregate statistic. In fact, at 77%, Chinese participation rates were over 2.5 times those of English speakers. Korean participation rates were also remarkably high. Russians and

Persian speakers also participated far more frequently than English speakers. By contrast, Spanish and Hindi participation rates in this course were relatively low. Nonetheless these latter two groups were the only two of 11 (including other) who participated in Math 12 less frequently than English speakers.

A comparison of mean scores among groups reveals that non-English speakers also out-performed English speakers by three percentage points. Again these mean scores vary by language group. Chinese and Korean scores were very high, six and nine percentage points above the native speaker baseline, whereas Philippino and Spanish scores were five and four percentage points below the English speaker baseline. The difference between English speakers and the other groups in scores is perhaps educationally insignificant. Overall, the participation and achievement of non-native English speakers in high track mathematics is impressive.

Table 96a
Language used at home: Participation and performance in high track Math, Vancouver

Language used at home	Participation		Average score (%)
	N	%	
Non-English Speakers			
All	4,880	54	77
Subgroups			
Chinese	2,765	77	80
Punjabi	499	37	71
Philippino	188	36	68
Hindi	83	22	71
Korean	256	68	83
Spanish	69	19	69
Vietnamese	147	41	71
Persian	153	47	73
Russian	80	55	73
Arabic	44	39	71
English Speakers	4,235	28	74

In many ways Table 96b is simply the mirror image of Table 96a. It shows participation and achievement in the aggregated non-academic math options Essentials of Math 11 and Applications of Math 11. Non-English speakers were less likely than English speakers to enrol in this class. Members of the high achieving Chinese and Korean groups enrolled extremely

infrequently. Only two groups enrolled more frequently than English speakers, the same two who enrolled in high track mathematics less frequently, Spanish and Hindi.

Despite the less academic nature of this course, the scores among all groups are much lower, though fairly evenly distributed, between 57% and 64%. Nonetheless, none of the non-English speaker subgroups exceeded the English speaker score in low track mathematics.

Table 96b
Language used at home: Participation and performance in low track Math, Vancouver

Language used at home	Participation		Average score (%)
	N	%	
Non-English Speakers			
All	1,566	17	62
Subgroups			
Chinese	223	6	62
Punjabi	391	29	62
Philippino	125	24	64
Hindi	145	38	59
Korean	11	3	59
Spanish	128	35	57
Vietnamese	76	21	63
Persian	63	19	59
Russian	19	13	63
Arabic	24	21	62
English Speakers	4,423	29	64

Science

Participation in high track science courses echoes the pattern of high track mathematics (see Table 97a). In aggregate, non-English speaker participation rates greatly exceeded English speakers. And, in fact, only two groups, the Spanish and Hindi, fell below the comparison group baseline of 20%. Most groups were substantially above this rate. Again, Chinese and Korean participation rates were extraordinarily high, at 68 and 57%, tripling and more than tripling non-English speakers.

Despite the advantage in participation, most language groups did not equal or exceed English speakers average scores. The aggregate non-English speaker score which was higher than

English speakers owes to the only two groups who exceed non-English speakers scores, the Koreans and the numerous Chinese. Philippino scores were eight percentage points lower. Six other groups however were within three percentage points, a relatively modest disadvantage, especially in light of their higher participation rates.

Table 97a
Language used at home: Participation and performance in high track Science, Vancouver

Language used at home	Participation		Average score (%)
	N	%	
Non-English Speakers			
All	4,045	45	75
Subgroups			
Chinese	2,426	68	77
Punjabi	397	30	71
Philippino	148	29	66
Hindi	73	19	70
Korean	212	57	78
Spanish	43	12	72
Vietnamese	113	32	69
Persian	120	37	72
Russian	61	42	71
Arabic	32	28	72
English Speakers	3,015	20	74

Low track science was not a popular option among the groups of students. Overall, small proportions of English speakers enrolled, and even smaller percentages of non-English speakers did. It was extremely unpopular among the Chinese, Koreans and Russians. The largest proportions of students were among the Hindi and Punjabi followed by the Vietnamese and the Spanish (see Table 97b).

English speakers fell in the middle of the mean scores among groups, however the small cell sizes among many of the language subgroups suggest average scores be regarded cautiously. In any case, all groups were within plus or minus five percentage points of the English speakers baseline. As in low track Language Arts and low track Math, all scores were much lower than in the university track option.

Table 97b
Language used at home: Participation and performance in low track Science, Vancouver

Language used at home	Participation		Average score (%)
	N	%	
Non-English Speakers			
All	581	6	65
Subgroups			
Chinese	89	2	66
Punjabi	168	13	64
Philippino	44	9	68
Hindi	64	17	62
Korean	3	1	61
Spanish	40	11	61
Vietnamese	39	11	69
Persian	21	6	60
Russian	4	3	64
Arabic	7	6	69
English Speakers	1,214	8	65

4.2.2 Multivariate regression analysis

As described in section 1.3.1.2, we now present the results of multi-level regression models predicting graduation two years after expected and participation in university track Mathematics 12. The odds ratio of the non-English speakers group and subgroups are compared to those of English speakers with and without the demographic, schooling process and school characteristic controls presented in the descriptive Tables[2]. For policy purposes school-level variance is presented; however, in many tables the figures are not reliable in the target population for reasons outlined below. This is a limitation of this report.

4.2.2.1 Graduation rates two years after expected

1 - Comparative performance of non-English speakers and various subgroups

As can be seen in Table 98, initially, non-English speakers had a significant advantage over English speakers. When control variables were added the magnitude of the advantage remained

[2] A score of 1.00 indicates even odds. Scores greater than 1.00 indicate better than even odds; scores under1.00 indicate odds against.

essentially unchanged. As an aggregate group, non-English speakers had over twice the odds of graduating of English speakers, all else being equal. This finding accords with the descriptive tables, which affirm non-native English speakers graduated more frequently than English speakers overall (Table 93).

Table 98
Graduation: Differences between target group (non-English speakers) and subgroups and comparison group (English speakers) with or without control variables, Vancouver
N = All target and non target: 24,248

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. English)										
▪ All non-English			2.14	***	2.12	***				
Language subgroup variables (ref. English)										
▪ Chinese							2.90	***	2.80	***
▪ Punjabi							2.03	***	2.39	***
▪ Vientamese							0.68	***	1.07	
▪ Philippino							1.22		1.34	*
▪ Spanish							0.46	***	0.68	**
▪ Other non-English speakers							1.03		1.28	**
Variance of random intercept s2u	0.75	***	0.75	***	0.70	***	0.88	***	0.79	***
Intra-class correlation (% of total variance at school level)	18.6%		18.6%		17.5%		21.1%		19.3%	
% of school level variance explained by model			0.2%		5.7%		-13.2%		-3.8%	

*** Significant at < 0.001 ** Significant at < 0.01 * Significant at < 0.05

Almost 19% of variance occured at the school level. The introduction of the target group variable did not reduce this number. Non-English speakers accounted for no school level variance. When the control variables were added, the model explained nearly six percent of school level variance, leaving unexplained school variance at 17.5%. Overall, school level variance among the entire population was not well explained by our model.

Table 98 also indicates that the graduation odds of different language subgroups relative to English speakers vary in magnitude and significance. Without control variables, Chinese and

Punjabi speakers had much better odds of graduation than English speakers, nearly three to one, in the former case. By contrast, Vietnamese and Spanish speakers had worse odds, more than two to one against in the latter case (1/.46 = 2.17). Philippino and other home language subgroup odds were non-significant.

Control variables had very little effect on the odd-ratio for the Chinese group, while Punjabi odds were strengthened. Spanish also rose modestly, but remained well below parity with English speakers. Notably, the control variables nullify the Vietnamese disadvantage and produced modest but significant advantages for Philippino and Other language speakers. These results echo Garnett (2008). The Chinese and Punjabi advantages in graduation rates cannot be solely explained by socio-economic or school level factors; however, these factors do go a long way in accounting for some of the disadvantage experienced by Vietnamese, Philippinos and others. Spanish results were also boosted, but factors not captured by our data leave them substantially disadvantaged relative to English speakers.

The addition of the language subgroup variable has the curious effect of raising the amount of school level variance. Further analysis revealed the small amount of observations in each school among each language subgroup contributed to this phenomenon. For example, one school contained only two Spanish speakers, neither of whom graduated, and another school contained a single Spanish speaker who did graduate. The variance in graduation rates between these two schools was therefore 100%. Similar patterns occurred repeatedly throughout the data. The disaggregation of non-native English speakers into language subgroups reveals important variation in trajectories; unfortunately, the small number of subjects within each subgroup at each school renders the interpretation of school level variance essentially fruitless at the level of language groups.

2 - Impact of socio-demographic, schooling process and school characteristics variables

When the comparison group (English speakers) was removed from the model and the non-English speakers group was compared among itself, odds ratios similar to Table 98 hold (see Table 99). Compared to all other non-English speakers, Chinese and Punjabi students had twice the odds of graduating. By contrast, Spanish speakers had close to twice the odds of *not*

graduating. Results for Philippino and Vietnamese were not statistically significant, however we see indications of disadvantage among the later group.

Female non-English speakers had significantly better odds of graduation than males. Median income level of the neighbourhood had no effect and was not significant. All results accord with Garnett (2008).

Schooling process variables appear important. Students who entered grade 8 late, possibly due to grade retention, had roughly one third the odds of graduating on time as their peers. Even more deleterious is the effect of changing schools. Students who changed schools more than once see their odds of graduating reduced to nearly one quarter those of stable students. The need for ESL service in high school was not significant although the beta indicates slightly reduced odds of lower English proficiency. Lastly, non-English speakers who entered the BC system in grade 8 had roughly three quarters the odds of graduating as those who entered in primary. The schooling process variables strongly suggest possible targets for policy response.

The school level variables in the Vancouver data are limited. Nonetheless, attendance at schools defined as 'challenged,' in the lowest three deciles of SES, reduced the odds of graduation to about four-fifths. By contrast attending an independent (private) school increased graduation odds substantially. The proportion of non-English speakers attending a school appears to have neither strong nor significant effects on graduation.

Similar to Table 98, school level variance increased with the addition of the language group variable to the model due to the small numbers of students from some groups at each school.

Table 99
Graduation: Impact of language group, socio-demographic, schooling process and school level variables (target group), Vancouver

N = All target: 9,001

Variables		Empty model		Full model	
				Odds-ratio	Sig
Language subgroups (ref. Other non-English speakers)	Chinese			2.27	***
	Punjabi			2.00	***
	Vietnamese			0.83	
	Philippino			1.06	
	Spanish			0.57	***
Socio-demographic	Female (ref. Male)			1.64	***
	Median family income			1.00	
	Immigrant (ref. Born in Canada)			n/a	n/a
Schooling process	Late upon entry (ref. Early or on time)			0.36	**
	Changed school (ref. No)			0.27	**
	ESL in high school (ref. No)			0.88	
	Entry in grade 8 (ref. Primary)			0.74	***
School level	School challenged (ref. No)			0.79	**
	Attended private school (ref. Public)			2.75	**
	Percentage of target group in the school 26-50% (ref. 0-25%)			1.19	
	Percentage of target group in the school 51-75% (ref. 0-25%)			0.83	
	Percentage of target group in the school 76-100% (ref. 0-25%)			0.51	*
Variance of random intercept s2u		**0.60**		**0.81**	*******
Intra-class correlation (% of total variance at school level)		**15.4%**		**19.8%**	
Percentage of school level variance explained by model				**28.2%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10 n/a : Non available

The purpose of Table 100 is to contrast the impact of the socio-demographic, schooling process and school level variables among the language subgroups. Due to the documented problems

measuring school level variance among the individual language groups, the percentage of school level variance explained is not reported. Indeed, in four of five groups the variation across the random intercept was not significant.

Female graduation odds surpassed males in all groups. The magnitude of female advantage was greater among Punjabis, Philippinos and Spanish. Male Chinese and Vietnamese had more equity with their female peers. Median income did not significantly predict graduation in any group. These results are similar to Garnett (2008), though he found some effect for income among Spanish.

Table 100
Graduation: Impact of socio-demographic, schooling process, and school level variables by language subgroups, Vancouver

Variables	Chinese N = 3,573		Punjabi N = 1,332		Philippino N = 516		Vietnamese N = 358		Spanish N = 363	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	1.27	*	2.17	***	2.21	**	1.62	*	2.15	**
▪ Median family income	1.00		1.01		0.98		1.00		1.00	
▪ Immigrant (ref. Born in Canada)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Schooling process variables										
▪ Late upon entry (ref. On time)	0.22	***	0.34	**	1.05		0.36		0.799	
▪ Changed school (ref. No)	0.24	***	0.43	***	0.23	***	0.29	***	0.270	***
▪ ESL in high school (ref. No)	0.62		0.83		0.88		1.72		0.532	
▪ Entry in grade 8 (ref. Primary)	0.63	**	2.11		0.65		0.03	**	10.447	
School level variables										
▪ School challenged (ref. No)	1.02		0.99		0.67		0.44	*	0.267	**
▪ Attended private school (ref. Public)	1.63		3.598		1.26		2.82		3.840	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.79	**	0.76		1.22		1.33		1.704	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	1.13		0.83		0.76		0.96		1.198	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	1.28		0.88		0.64		0.94		0.902	
Variance of random intercept s2u	0.38	*	0.20		0.18		0.00		0.76	
Intra-class correlation (% of total variance at school level)	10.3%		5.7%		5.2%		0.0%	*	18.8%	
% of school level variance explained by model	n/a		n/a		n/a		n/a		n/a	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10 n/a : Non available

Late entry into grade 8 did not achieve significance for the three least numerous groups, due to low numbers who entered late. However, it reduced graduation odds dramatically for Chinese and Punjabi students. School change was an extremely powerful negative effect across all five groups; it reduced graduation odds to from less than half to less than one quarter. The most resilient group to school change were Punjabis. Other groups exhibited even more deleterious school change effects.

Requiring ESL in high school trends toward negative effects in all groups except the Vietnamese, however, it did not achieve significance in any group. This indicator may not be sensitive enough to uncover limited English proficiency effects. Nonetheless, Garnett (2008) discovered that most groups could achieve six year graduation rates similar to English speakers even when requiring two years of high school ESL.

Entry at grade 8 decreased odds of graduation for the Chinese to about three fifths the odds of Chinese who entered the system in primary school. Due to small numbers arriving in grade 8, Punjabi, Philippino and Spanish odds ratio did not achieve significance. However, Vietnamese appeared to be at a tremendous disadvantage when arriving in grade 8 rather than elementary school with odds of 33:1 against, relative to their counterparts who arrived before grade 8. Dramatic as this number is, it accords with Garnett (2008) who found Vietnamese students arriving after grade 5 graduated at rates under 50%.

School level variables generally failed to achieve significance. Nonetheless, the contrast among language groups for attending disadvantaged schools warrants examination. Vietnamese and Spanish attending disadvantaged schools had graduation odds from less than half to a little better than one quarter of their peers who attended non-disadvantaged schools. They were particularly vulnerable to not graduating. Philippinos trend towards reduced graduation odds at disadvantaged schools, but statistical insignificance prevents concluding this firmly. Chinese and Punjabis however appeared totally resilient to this vulnerability. Their odds ratios were not only insignificant, their magnitude was essentially even. Chinese and Punjabi students appeared to graduate regardless of the socio-economic conditions of their schools.

There appeared to be a positive effect for attendance at private schools among all groups, however, significance was not achieved. The concentration of non-English speakers of the school achieved significance in only one of 15 cells. Generally, there appeared to be an advantage within the Chinese students to studying among higher proportions of non-English speakers, but a disadvantage to Punjabis. In the other three groups there appeared to be a trend toward worse graduation odds with each level up the ladder of concentration. Nonetheless, the odds ratios are computed relative to 0-25% concentration. Therefore there may be an "optimum level of ethnic concentration", from 26-50% for these groups. Still, lack of significance prevents confirming this. Higher degrees of concentration may also be tapping a low school SES effect, already shown to be deleterious to these three language groups.

As with the previous tables predicting graduation among the language groups, the school level variance statistics are not reliable due to small numbers. They should be disregarded.

3 - Differences with the comparison group

Table 101 predicts graduation for the comparison group. Gender offers female English speakers an advantage similar to the one it offered non-English speakers. By contrast, an important difference is the role of income. It is a highly significant predictor in this population, whereas it was not for the non-English speakers group in Table 99. Although the odds ratio looks small, this in part owes to the finely graded variable; the odds ratio shows the advantage for every increment of $1,000 in neighbourhood income. Garnett (2008) also showed income predicted graduation for English speakers much more strongly than it did for ESL students. The non-English speakers group appeared to value the graduation credential enough to ensure receiving it regardless of their income level.

Schooling process variables strongly predicted graduation among English speakers as it did for non-English speakers. In fact, entering grade 8 late reduced English speaker odds slightly more. Likely, some target group members entered grade 8 late due to different systems of counting both ages and grades, whereas English speakers likely entered late when they had been retained in a previous grade, an early predictor of vulnerability. The school change graduation odds were

exactly the same in the English speaker and the non-English speaker population. This is a powerful predictor of risk of non- graduation for both groups.

Table 101
Graduation: Impact of socio-demographic, schooling process and school level variables (comparison group), Vancouver

N = All non-target group: 15,247

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			1.73	***
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			n/a	n/a
Schooling process variables				
▪ Late upon entry (ref. Early or on time)			0.20	***
▪ Changed school (ref. No)			0.27	***
▪ ESL in high school (ref. No)			1.04	
▪ Entry in grade 8 (ref. Primary)			0.32	
School level variables				
▪ Index of challenge for public schools 8-10 (ref. No)			1.03	
▪ Attended private school (ref. Public)			3.93	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.21	***
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			0.84	**
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			0.87	
Variance of random intercept s2u	0.52	***	0.28	
Intra-class correlation (% of total variance at school level)	13.6%		7.8%	
% of school level variance explained by model			42.8%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10 n/a : Non available

Table 101 also indicates that English speakers who did not enter the system in a Metro Vancouver school until grade 8, or changed schools after grade 8 were also seriously disadvantaged.

School level variables reveal little. Surprisingly, there appeared to be no effect to attending a disadvantaged school. The low income school level effect may already have been caught by the socio-demographic median income variable. The private school effect seems to reflect a large magnitude, as might be expected, but also fails to reach statistical significance. As it was the case for non-English speakers, there appears to be a significant advantage to attending a school with a 26-50% concentration of non-English speakers relative to schools with smaller proportions. Just

as with non-English speakers though, this advantage switches to a disadvantage when proportions exceed 50%.

Just under 14% of variance in graduation occurs at the school level in the empty model. The full model accounts for nearly 43% of this variance leaving about eight percent of variance to random school factors. When the aggregate non-English speakers group was examined (refer to Table 99) approximately 15% of variance occurred at the school level. However, the difference between the comparison and target empty model variations was educationally insignificant; schools appear to account for very similar degrees of variation between English speakers and non-English speakers. The full models are hard to compare as the rising variation in the non-English speakers group model indicates the statistic may be unreliable.

4.2.2.2 Access to university-bound or selective courses

Principles of Mathematics 12 is a typical requirement for entrance in many of the programs at British Columbia's three major universities. Enrolment in this course is a fair indicator of which students have realistic plans for university attendance upon exit from high school. In these analyses, we examine only students who had progressed to grade 12, as students who had previously left the system were not able to make these plans.

1 - Comparative performance of non English-speakers and various subgroups

Table 102 indicates that, in aggregate, non-English speakers had 3.5 times better odds than English speakers for enrolment in this course. This finding accords with the descriptive statistics and with Garnett (2008).When the control variables were added non-English speakers effectively retain most of their advantage. Again, the odds ratio accords with the descriptive statistics and previous research.

Originally, school level factors accounted for 14% of the variance in enrolment rates. The final model accounted for 46% of this school level variance.

Table 102
Participation in selective courses: Differences between target group (non-English speakers) and subgroups and comparison group (English speakers) with or without control variables, Vancouver

N = All target and non target enrolled in grade 12: 21,450

Variables	Model 1 empty model		Model 2 only target group		Model 3 with control variables		Model 4 only target subgroups		Model 5 with control variables	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Language group variable (ref. English)										
▪ All non-English			3.54	***	2.73	***				
Language subgroup variables (ref. English)										
▪ Chinese							11.19	***	10.95	***
▪ Punjabi							1.52	***	1.63	***
▪ Vietnamese							2.33	***	3.13	***
▪ Philippino							1.52	***	1.52	***
▪ Spanish							0.65	**	0.71	**
▪ Other non-English speaking							2.13	***	2.07	***
Variance of random intercept s2u	0.54	***	0.44	***	0.31	***	0.37	***	0.23	***
Intra-class correlation (% of total variance at school level)	14%		1.8%		8.6%		10.1%		7.6%	
% of school level variance explained by model			15.9%		38.7%		27.6%		46.0%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

The language variables are very important in understanding mathematics participation. Compared to English speakers, every language subgroup examined, except the Spanish, had better odds of participation. The Chinese advantage is phenomenally high, 11 times better odds than English speakers. Vietnamese and other home language speakers had about double the odds of English speakers, while Punjabi and Philippino had well over one and a half times better odds. Only the Spanish had worse odds of mathematics participation, at about one and a half times against.

The addition of the control variables did little to alter enrolment odds of any group except the Vietnamese who improved from nearly twice to nearly thrice those of English speakers. This finding echoes Garnett (2008) where it was found that the language proficiency was particularly

important in understanding Vietnamese outcomes. The Spanish disadvantage was slightly ameliorated, though it remained significant.

Unlike the graduation models, our course selection models are able to explain school level variance, despite the low numbers within the language subgroups. We hypothesize ethnicity, for which home language is a proxy, is simply a better predictor of course selection than graduation. Chinese students are more likely to enrol in Math 12 than English speakers regardless of the school they attend. Conversely, Spanish are not. Consequently, the model is quite strong. The ethno-cultural factors, along with the control variables, explain nearly half of the school level variance.

2 - Impact of socio-demographic, schooling processes and school characteristics variables

When the full model was run on those enrolled in grade 12 in the target group only, results for the language subgroups exhibited a slightly different pattern. In Table 103, the reference group for the language subgroups was not English speakers, but 'all other non-English speakers'. Chinese maintained overwhelmingly favourable odds of participation, over five times those of other non-English speakers. The only other group with favourable odds compared to other non-English speakers was Vietnamese. Punjabi, Philippino and Spanish speakers all had less than even odds of Math 12 enrolment compared to all other non-English speakers. Spanish odds were again especially low, almost three to one against.

Consistent with much of the literature there was no female participation advantage in mathematics, the way there is in many other outcomes including graduation. However, median income was again a significant predictor. Both results were consistent with Garnett (2008) and Garnett *et al.* (2008). The income odds ratio appeared small (even odds at the second decimal place) due to the fine grain of the variable. The ratio describes the advantage predicted by every additional thousand dollars of neighbourhood income.

Table 103
Participation in selective courses: Impact of language group, socio-demographic, schooling process and school level variables (target group), Vancouver

N = All target enrolled in grade 12: 8,175

Variables		Empty model		Full model	
				Odds-ratio	Sig
Language subgroups (ref. Other non-English speakers)	Chinese			5.74	***
	Punjabi			0.80	*
	Vietnamese			1.65	**
	Philippino			0.74	**
	Spanish			0.34	***
Socio-demographic	Female (ref. Male)			0.92	
	Median family income			1.00	**
	Immigrant (ref. Born in Canada)			n/a	n/a
Schooling process	Late upon entry (ref. Early or on time)			0.50	***
	Changed school (ref. No)			0.50	***
	ESL in high school (ref. No)			1.12	
	Entry in grade 8 (ref. Primary)			1.48	***
School level	School challenged (ref. No)			0.64	
	Attended private school (ref. Public)			2.28	***
	Percentage of target group in the school 26-50% (ref. 0-25%)			1.23	**
	Percentage of target group in the school 51-75% (ref. 0-25%)			0.90	
	Percentage of target group in the school 76-100% (ref. 0-25%)			0.69	**
Variance of random intercept s2u		**0.97**	*******	**0.45**	*******
Intra-class correlation (% of total variance at school level)		**22.8%**		**12.0%**	
Percentage of school level variance explained by model				**47.3%**	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10 n/a : Non available

Significant schooling process indicators are age of entry, school change, and entry to the system in grade 8 vs. elementary school. Interestingly, later entry increased odds of participation in mathematics. Garnett (2008) found the same result. Possibly, the reduced linguistic demands and

cultural transferability of mathematics, coupled in some cases with advanced preparation in their home countries makes mathematics an attractive option for later immigrants. The trend shows that even needing ESL in high school, another indicator of later arrival, is a positive effect on Math 12 participation. Changing schools and being older than 13 upon grade 8 entry appeared negative, as expected; however, the results were not significant.

At the school level, attendance at disadvantaged schools did significantly affect participation. Private school attendance doubled odds of enrolment in this prestigious course. Again, the concentration of non-English speakers variable had, relative to a 0-25% concentration, a positive effect at the 26-50% level of non-English speakers concentration. However, higher levels of concentration lead to reduced odds of enrolment.

The total variance at the school level in participation in mathematics among non-English speakers was a substantial 23%. Our model explains 47% of this variance, leaving 12 percentage points of unexplained variance at the school level.

In a second step, we wished to examine the effects of the control variables on each language subgroup (Table 104). In most cases, statistical significance could not be achieved in these models. In fact, of the socio-demographic variables, only median income within the Chinese group was a significant factor. It travels in the expected direction. Outside the Chinese and Spanish group there was a non-significant trend toward higher odds of female participation in mathematics (*pace* Garnett *et al,* 2008) which was a little surprising.

Among the schooling process variables, school change was easily the most important. Changing schools in the high school career reduced odds to between one half and one third for every language group. Late entry to grade 8 appeared to have a negative effect across all language groups but it only achieved significance among the Punjabi speakers. Chinese had significantly better odds of Mathematics 12 participation if they entered in grade 8 rather than elementary school. This supports the earlier hypothesis regarding preparation in the subject area in the home country. Chinese odds in this cell contrast starkly with Philippinos who had exceptionally low odds of Math 12 participation if they arrived in grade 8. It is reasonable to suspect they may not

have had the same home country schooling advantages. Needing ESL in high school was not a significant indicator for any group.

Table 104
Participation in selective courses: Impact of socio-demographic, schooling process and school level variables by language subgroups, Vancouver

Variables	Chinese N = 3,397		Punjabi N = 1,245		Philippino N = 467		Vietnamese N = 294		Spanish N = 291	
	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables										
▪ Female (ref. Male)	0.89		1.17		1.20		1.06		.61	
▪ Median family income	1.01	**	1.00		1.00		1.00		1.01	
▪ Immigrant (ref. Born in Canada)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Schooling process variables										
▪ Late upon entry (ref. Early or on time)	0.57	*	0.21	**	0.47		0.18		0.22	
▪ Changed school (ref. No)	0.38	***	0.43	***	0.346	***	0.48	***	0.63	***
▪ ESL in high school (ref. No)	1.30		0.44	**	1.22		0.34		0.68	
▪ Entry in grade 8 (ref. Primary)	1.83	**	1.14		0.67		1.53		2.88	
School level variables										
▪ School challenged (ref. No)	0.62	***	0.65	**	0.57	**	0.83		0.80	
▪ Attended private school (ref. Public)	2.61	*	2.22		0.57		3.44		2.39	
▪ Percentage of target group in the school 26-50% (ref. 0-25%)	1.55	**	1.31		2.568	**	0.90		.97	
▪ Percentage of target group in the school 51-75% (ref. 0-25%)	1.20	*	.98		1.25		0.38		.68	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)	0.97		1.19		1.53		0.35		0..83	
Variance of random intercept s2u	0.65	**	0.75	**	0.0		0.0		1.03	
Intra-class correlation (% of total variance at school level)	16.4%		18.5%		0.0%		0.0%		23.8%	
Percentage of school level variance explained by model	27.2%		-2.3%		n/a		n/a		n/a	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

There was a statistically significant odds reduction in participation in mathematics to three of the five groups for attending a 'disadvantaged school'. Odds were reduced by about one third to one half. This result accords with Garnett *et al*. (2008). The largest disadvantage was to the Philippino group. Private school attendance had an unsurprisingly positive effect on the Chinese speakers, and appeared to have one on the Punjabi, Vietnamese and Spanish, though the low numbers attending private school prevent statistical significance. The unexpected trend to private

school disadvantage among Philippinos may relate to their heavy attendance in Catholic schools rather than high tuition university-preparatory private schools.

Chinese and Philippino students all had statistically better odds of Math 12 participation when attending school in 26-50% concentrations of non-English speakers. This advantage diminished and lost significance as proportions of non-English speakers grew larger.

Except among the Chinese and Punjabi, school level variation did not achieve significance in the individual language groups, so the empty models and percentages of school level variation explained are not reported; variation across the random intercept was also insignificant for these three groups. Among the Chinese, school level variation accounted for a 16% of total variation in Math 12 enrolment. Our model can explain 27% of that. Chinese students largely enrolled in Math 12 independent of the schools they attended. Interpretations of school level variation among the other groups cannot be made.

3 - Differences with the comparison group

The final regression (Table 105) shows the effects of the control variables on the English speaking group. The first striking difference was the significant female disadvantage in enrolment among the English speakers. No single language group showed a significant female disadvantage in enrolment, nor did the aggregate target group (refer to Tables 104 and 103). Some theorists posit female immigrant students are under more pressure to succeed in a host country than they would be in their home countries (Qin-Hilliard, 2003); this may explain a higher female propensity for enrolment in the non-English speakers communities. Median family income level also significantly increased enrolment odds, about the same magnitude as it did in the aggregate target group population.

Table 105
Participation in selective courses: Impact of socio-demographic, schooling process and school level variables (comparison group), Vancouver

N = All non-target enrolled in grade 12: 13 275

Variables	Empty model		Full model	
	Odds ratio	Sig	Odds ratio	Sig
Socio-demographic variables				
▪ Female (ref. Male)			0.84	***
▪ Median family income			1.01	***
▪ Immigrant (ref. Born in Canada)			n/a	n/a
Schooling process variables				
▪ Late upon entry (ref. Early or on time)			0.24	***
▪ Changed school (ref. No)			0.59	***
▪ ESL in high school (ref. No)			1.45	***
▪ Entry in grade 8 (ref. Primary)			2.46	***
School level variables				
▪ School challenged (ref. No)			0.83	***
▪ Attended private school (ref. Public)			3.09	***
▪ Percentage of target group in the school 26-50% (ref. 0-25%)			1.34	***
▪ Percentage of target group in the school 51-75% (ref. 0-25%)			1.06	
▪ Percentage of target group in the school 76-100% (ref. 0-25%)			1.22	
Variance of random intercept s2u	0.34	***	0.22	***
Intra-class correlation (% of total variance at school level)	9.3%		6.1%	
% of school level variance explained by model			34%	

*** Significant at < 0.001 ** Significant at < 0.05 * Significant at < 0.10

Most schooling process variables appeared even more powerful in the comparison group than among non-English speakers (refer to Table 103). Odds of a English speaker participating in Math 12 were five to one against, if s/he enters grade 8 one year late. Changing schools also appeared to have a very strong effect on English speakers. Their odds of participation when changing schools were significantly reduced, unlike for non-English speakers.

Both attendance at a disadvantaged school and a private school had significant effects in the expected directions on mathematics enrolment odds, As is consistent in throughout the models, the schools with 26-50% concentrations of non English speakers appeared to provide increased

odds of enrolment for the comparison group as well as for the target group. Though non-significant, odds appeared to decrease with higher proportions of non-English speakers

About nine percent of variance in Math 12 enrolment is attributable to schools, far less than the 23% in the target group empty model. Our full model explains 34% of this variance, leaving unexplained school effects accounting for about six percent of variance in enrolment. By contrast our full model left about 12% of total variance attributable to unexplained school effects in the target group. We may hypothesize unexplained school factors have a very slightly larger effect on non-English speakers than English speakers in Math 12 enrolment.

4.3 CONCLUSION AND POLICY IMPLICATIONS

1 - Conclusion

This report has examined the educational pathways and academic performance of students who did not use English at home. Overall, these students appeared to be faring very well in Metro Vancouver schools relative to the baseline provided by English speakers. However, the aggregate outcomes mask wide and predictable variation of language subgroups. Indeed, within the Metro Vancouver context, background proved a fairly stable indicator of outcomes even when controls for other demographics, schooling processes and school characteristics were in place. The groups identified as higher and lower achieving were consistent with previous BC research (Garnett, 2008, Garnett *et al.* 2008; Gunderson, 2007).

Ethno-cultural effects were mildly attenuated by the control variables, but more so among some linguistic groups (e.g. Vietnamese and Philippinos) than others. Median family income had only mild effects which rarely achieved significance in disaggregated populations. Female non-English speakers had an advantage in graduation but not a statistically significant one in mathematics. School change emerged as a strong predictor of educational disadvantage among both non-English speakers and English speakers. Unsurprisingly, so did late entry to grade 8, possibly due to grade retention. Interventions with educationally at risk students need to begin early. The need for ESL instruction in secondary school rarely proved a significant factor in predicting graduation, though negative trends emerge. This indicator was probably not sensitive enough to capture the effects of limited English proficiency in high school.

School level variance was not especially satisfactorily predicted by the models due to the small numbers in the ethno-cultural groups. To the degree interpretations can be made, school level variance accounted for at most a non-trivial 20% of variance in outcomes. Generally, however it appeared to account for substantially less. Our school level indicators were also limited, though there appeared to be a positive effect for both English and non-English speakers to study among a moderate proportion of non-English speakers. Students from the target group attending private school were advantaged in mathematics participation and graduation in both populations while attendance at disadvantaged schools had deleterious effects on both populations.

The results of this report must be interpreted thoughtfully. In particular, the definition of the population, anyone who ever claimed a home language other than English, merits attention. This is not a population challenged by limited English proficiency. As Table 90 indicates, only 28% of the population ever required even one ESL class after grade 8. Therefore, the positive results for most language subgroups here should not be confused with the very problematic results for high school ESL students in other studies (in Vancouver, Gunderson, 2007; Garnett, 2008; Pirbhai-IIlich, 2005; in other Canadian jurisdictions Watt & Roessingh, 1994, 2001; Derwing, 1999). Further, the insignificance of the ESL variable in the multivariate regression models, almost certainly owes to its lack of sensitivity. Garnett (2008) found two or more years of ESL service in high school was the point at which patterns of educational risk emerged.

As an entire population, non-speakers of English appear to be faring very well in Metro Vancouver schools. Nonetheless, some clear risk factors demand and suggest some policy responses, which are outlined below.

2 - Policy implications

Disaggregate data for decision making

There is wide variation in academic trajectories among the subgroups masked by the ‘immigrant’ label, or more pertinently in BC, the ‘ESL’ label. Ethno-cultural background robustly predicts academic outcomes. The dominant pattern of Chinese speakers is an extraordinary achievement, particularly in mathematics and the sciences. By contrast, Spanish speaker outcomes were persistently among the lowest of any group. Twenty-eight percentage points separates the

graduation rates of these two groups even when extra time to achieve this outcome is granted. Decision makers ought not consider their needs similar.

Direct support towards the students who most need it

This implication follows the previous observation. The BC Ministry of Education does not provide financial resources to school boards for 'immigrant' students, but it does provide over $1,178/year per student who requires ESL service. Interestingly, the groups in least frequent need of high school ESL, the Spanish and Hindi (Table 90) were some of the most educationally vulnerable, whereas many groups in more frequent ESL need, for example the Koreans, Chinese and Russians, appeared to fare very well.

Thus, although the funds are generated per student, clearly, identifiable subgroups are at risk of non-completion of high school while other subgroups are by most measures outperforming the comparison group baseline. In a universe of scarce resources, and a school system concerned with equity, it makes more sense to target a larger share of resources to under-performing groups of students. As Cummins (1998) suggests, "Every dropout carries a huge price tag for society" (p. 265).

The implication is not that boards develop explicit policies for different ethno-cultural groups. Rather, they should assess how closely these findings reflect their own student populations through consultations with teachers, counselors and administrators, then take decisions to extend the support required. In BC, school boards have wide latitude in spending the funds received from the provincial government, and need not spend exactly the $1,178 received for an ESL student on that student per se. Therefore they can develop site-specific programs for supporting students in schools with the largest academic equity gaps. As Goddard and Hart (2007) suggest, if school leaders assume that ethno-culturally diverse students all arrive at school equally ready-to-learn, and are thus "treated exactly the same as everyone else" (p. 21) schools will continue to promote the success of only the dominant classes. While there may be a need to reconcile the fact that service needs to be 'proven' for *all* ESL students who generate money for boards, and the fact that some non-English speakers need service far more than others, the need to treat dissimilar needs differently cannot be ignored.

Address gaps in content knowledge as well as linguistic knowledge

While the ESL indicator in the models was rarely sensitive enough to capture effects, the fact that the language groups at greatest risk appeared to have little need for ESL service in secondary grades cannot be ignored. It may be that gaps in first language content knowledge account for some of their disadvantage. Extensive first language academic knowledge likely accounts for the high outcomes of Chinese and Korean speakers in mathematics. Conversely, students from countries with less highly developed educational infrastructures, who may also have experienced interrupted schooling, may have relatively underdeveloped first language academic knowledge, a serious impediment to their second language academic fluency (Cummins, 2000). Therefore, these students may benefit from intense remedial content instruction. Further, the fact that outcomes in high school are affected when the students in this study all arrived in grade 8 or well before, suggests the need for early intervention.

A wide body of literature over the past two decades has provided strategies for, and discussed the importance of ensuring curricular content knowledge is taught to non-English speakers simultaneously with their English language instruction (Mohan, 1986, Chamot & O'Malley, 1994; Brinton, Snow & Wesche, 2003). And, when examining the navigation of ESL students through high school, Derwing *et al.* (1999) note, a "stronger link between ESL and content curricula is necessary" (p. 545) to promote success.

Address the needs of students who change schools

Beyond language indicators, school change emerged as one of the strongest and most consistent indicators of vulnerability. Researchers have yet to examine the effectiveness of interventions that aim to assist mobile students. Effective and efficient protocols for the transfer of student records across schools and jurisdictions may be helpful. Close monitoring of the educational progress and attendance rates of students with histories of frequent school change may also assist. As well, schools may seek to mediate the social impact of mobility with student welcoming programs, buddy programs, and outreach to new parents. Over and above all this, ministries, school districts and educators may need to focus on the continuity of curricular content issues that mobile students may face.

Provide as much time as necessary for graduation

This study indicates that time invested in non-English speakers is rewarded; the dominant pattern in most language groups is the desire to achieve. They graduate and participate in academic courses more frequently than English speakers. When Arabic speakers are granted an extra year to achieve graduation their graduation rate jumps from 60% to 67%, compared to four percentage point boost from 71% to 75% for English speakers over the same time period. Other groups exhibit the same pattern. Therefore, allowing extra time is an important step for narrowing the equity gap between groups. While BC schools allow one extra year to graduate (the six-year rate is the official number) students are typically obliged to exit high school at age 19. While this policy does not preclude high school completion among older students, it does not facilitate it either. The desire to graduate is evident in the amount of students still enrolled in the system two years after their expected graduation date. It may be worth creating provisions for immigrant students to remain in school beyond age 19. Indications are they will use this time wisely.

The policy mix should address both students and schools

Our models often could not satisfactorily capture school level variance, and our school level variables were limited in their power to capture the all the effects of ethnic concentration and SES. However, some unexplained variance surely 'really' exists at the school level. The indications are it may be slightly larger for non-English speakers than for English speakers. More certainly, despite the obvious desire for academic success among the linguistic subgroups, as evidenced by their graduation rates and participation in high track courses, in many cases their mean scores could not match native speakers. Considering 93% of the target group students had been in the BC system since before grade 8, this is unfortunate.

The literature states school administrators and counselors are key players in ensuring immigrant students success (Kouritzin, 2004; Derwing *et al.*, 1999). Both must organize schools and timetables to ensure the needs of these students are met. Cummins recommends school boards make the clear vision for the support of second language learners a criterion for promotion to administrative positions (1997).

Of course the school level personnel with the most impact on ESL students are teachers. The mean score gaps among some language groups, which had been in BC schools for at least five years, indicate room for improving instructional delivery. Some mainstream teachers may also need to become more comfortable accommodating linguistic and cultural diversity. Rigorous pre-service and in-service professional development could address these needs.

Unfortunately, despite Metro Vancouver's multicultural reality, pre-service education programs in BC generally include the needs of immigrant students as just one of many components in social justice courses, and rarely include mandatory training in the techniques of communicating academic content to non-English speakers. If school boards were to make such courses conditions of hire, they could pressure universities to provide them and increase their ability to accommodate the immigrant populations they serve.

CHAPTER 5

GENERAL CONCLUSION[*]

[*] Written by Marie Mc Andrew with the collaboration of other project members.

5.1 COMPARATIVE TRENDS

What lessons can be learned from these parallel, and largely similar case studies, regarding the educational pathways and academic performance of immigrant youth in Canada's three main cities and the factors that influence them? Before providing some answers to this rather ambitious question, a few qualifications are needed. It is, indeed, very important to recall that, although we can contrast trends and conclusions, there are too many differences between the three contexts to permit a strict comparison, both with respect to the characteristics of the target and comparison groups and of subgroups, and the indicators used to assess their educational experience. As stated above, there are significant variations in the structure of the school systems, the units studied, as well as the variables found in the data banks. In this last instance, the differences may concern the very availability of certain indicators (such as immigrant status or attendance of a public or private school) or a slight variation in their definition (see section 1.3). Moreover, although at the descriptive data level we ensured a wide comparability of subgroups across sites, this was not possible when carrying out the regression analysis, where only one common subgroup, the Chinese, could be kept. Nevertheless, the three case studies, which were carefully designed to achieve the highest possible comparability while respecting local specificities, bear enough resemblance to allow for some general comments that can, hopefully, enlighten our understanding of the phenomenon under study, as well as point to some future directions. This will be done based on three sites data, e.g. using language used at home to define the target and comparison group as well as subgroups. Indeed, in addition to being limited to two sites, the descriptive data based on region of birth has not been subjected to regression analysis.

5.1.1 Characteristics of the target and comparison groups and of subgroups

A first trend that clearly emerges from the three case studies is the fact that our target group (non-French speakers in Montreal, non-English speakers in Toronto and Vancouver) is highly diversified in terms of socio-demographic, schooling process and school characteristics, both within and across sites. This is true even if, when contrasted with the comparison group, it generally holds a profile that would lead one to expect potential problems in terms of schooling

experience and outcomes (e.g. what the Toronto site report identifies as *risk factors*). Moreover, although each site has specifically challenged subgroups, there is no clear and congruent ranking order across or within sites in this regard, a trend which contrasts sharply with the fairly consistent hierarchy one encounters in terms of educational pathways and academic performance. In other words, not only are the groups diversified but, depending on the characteristic examined, one group can show a higher or a lower occurrence of risk factors.

To illustrate this reality, using a few of the socio-demographic indicators covered in the three case studies (Table 106a and b), in the three cities, the target group is much more often represented in the lowest median family income quintile than the comparison group, with significant and inconsistent variation across cities. Nevertheless, in the three contexts, some groups appear to be much more socio-economically disadvantaged than others. These are most often visible minorities: Creole and Somali speakers respectively in Montreal and Toronto, and Vietnamese speakers in Toronto and Vancouver; the latter group showing a very distinct profile across cities[1].

Table 106a
Language used at home: Distribution of the target and comparison groups across median family income quintiles (Montreal, Toronto, Vancouver)

City	Language used at home	Lowest (%)	2nd (%)	3rd (%)	4th (%)	Highest (%)
Montreal	French speakers	14.7	18.2	21.7	22.5	23.0
	Non-French speakers	30.3	23.5	16.9	15.3	14.0
Toronto	English speakers	14.9	15.6	20.7	22.1	26.9
	Non-English speakers	26.7	25.2	22.0	15.5	10.5
Vancouver	English speakers	13.0	16.0	20.0	24.0	24.0
	Non-English speakers	30.0	25.0	19.0	13.0	11.0

[1] The percentage of the target and comparison groups attending a school identified as educationally challenged, which we do not present here, also points in that direction. Nevertheless, comparability here is doubtful, as the indicator used in Montreal contrasts the city with the province as a whole, while in Toronto, inner city schools are compared with other schools from the same board (as for Vancouver, remember that it is a crafted indicator with a less obvious relationship with specific extra funding).

Table 106b
Language used at home: Distribution of selected subgroups in the highest and lowest median family income quintiles (Montreal, Toronto, Vancouver)

Language used at home	Montreal		Toronto		Vancouver	
	Highest (%)	Lowest (%)	Highest (%)	Lowest (%)	Highest (%)	Lowest (%)
Chinese	15.6	31.1	10.5	15.7	13.0	30.0
Vietnamese	14.4	28.7	3.1	41.3	1.0	49.0
Persian	12.5	26.0	10.8	23.3	21.0	33.0
Arabic	16.7	21.3	7.6	20.2	9.0	25.0
Spanish	5.6	33.8	8.9	29.7	2.0	39.0
Creole	4.2	41.5	-	-	-	-
Somali	-	-	5.1	43.5	-	-

In the two sites where such a variable is available, as can be seen in Table 107, the target group is also much more often born outside Canada than the comparison group, which is a foreseeable result. But the extent of variation in this regard is huge, ranging from 36.8 and 96.5 in Montreal, respectively for Vietnamese and Tamil, to 38.2 and 97.3 respectively for Portuguese and Somali in Toronto.

Table 107
Language used at home: Birth place of target and comparison groups and selected subgroups (Montreal and Toronto)

Language used at home	Born in Canada (%)	Born outside Canada (%)
Montreal		
French speakers	89.9	10.1
Non-French speakers	39.1	60.9
▪ Vietnamese	63.2	36.8
▪ Tamil	3.5	96.5
Toronto		
English speakers	84.3	15.7
Non-English speakers	26.2	73.8
▪ Portuguese	61.8	38.2
▪ Somali	2.7	97.3

With respect to selected schooling process characteristics, Table 108 clearly illustrates that in each of the three sites, the target group more often enters high school one year late than the comparison group. Nevertheless, what is interesting here is not so much the variation between groups, but the negative profile of the full Montreal cohort, both with respect to French and non-French speakers. As we will see later, this is also reflected in graduation rates (which would tend to indicate that a structural effect linked to the functioning of the school system in Montreal, or in Quebec, is at stake here).

Table 108
Language used at home: Age when entering high school: target and comparison group (Montreal, Toronto, Vancouver)

Language used at home	Early (%)	On time (%)	1 year late (%)	2 years late (%)
Montreal				
French speakers	5.6	74.4	18.7	1.3
Non-French speakers	3.5	55.3	18.7	11.2
Toronto				
English speakers	1.1	93.0	5.9	n.a.
Non-English speakers	1.3	91.3	7.5	n.a.
Vancouver				
English speakers	1.0	93.0	3.0	-1.0
Non-English speakers	1.0	93.0	5.0	-1.0

In terms of other schooling process variables, target group students were, surprisingly, not found in any of the cities to change school more often than the comparison group. However, they obviously received *soutien linguistique* or ESL/ESD courses much more often during high school. As can be seen in Table 109, in which we included the five common subgroups plus the two extreme results for each site, need in this regard is nevertheless highly variable between groups and across sites. Although Montreal and Toronto have a similar percentage of target group students requiring *soutien linguistique* or ESL/ESD (19.5 vs. 19.1), variation is greater in

Montreal and the same subgroups in each city do not show the same level of need (which can be expected as immigrant groups are more or less linguistically close or familiar with French or English). As for Vancouver, its rate of ESL/ESD students is higher (28%) and the range similar to that of Toronto.

Table 109
Language used at home: Percentage of students from the target group and selected subgroups who received *Soutien linguistique* or ESL/ESD courses during high school (Montreal, Toronto, Vancouver)

Language used at home	Montreal (%)	Toronto (%)	Vancouver (%)
All target	19.5	19.1	28.0
Chinese	24.8	19.8	36.0
Vietnamese	3.3	3.4	16.0
Persian	33.0	28.3	43.0
Arabic	14.6	21.4	29.0
Spanish	14.6	10.6	17.0
Tamil	52.9		
Korean			56.0

In terms of school characteristics, as can be seen in Table 110a, the target group in the three sites also has a higher rate of concentration in schools where it represents the majority than the comparison group.

Table 110a
Language used at home: Percentage of the target and comparison groups attending a school where the target group is the majority (Montreal, Toronto, Vancouver)

Language used at home	50-75% (%)	76-100% (%)
Montreal		
French speakers	4.4	1.4
Non-French speakers	19.2	20.5
Toronto		
English speakers	38.2	8.0
Non-English speakers	53.8	17.5
Vancouver		
English speakers	12.0	1.0

Non-English speakers	38.0	12.0

Table 110b
Language used at home: Percentage of selected subgroups attending a school where the target group represents more than 75% of the population (Montreal, Toronto, Vancouver)

Language used at home	Montreal (%)	Toronto (%)	Vancouver (%)
Chinese	16.3	25.6	12.0
Vietnamese	9.9	0.9	29.0
Persian	35.1	25.3	2.0
Arabic	13.0	27.3	4.0
Spanish	9.2	6.0	11.0
Creole	2.2	-	-
Somali	-	6.1	-

Montreal emerges as the city where school segregation between the target and comparison groups is the highest: in the other sites, a significant percentage of English speakers attend such concentration schools, which is not the case for French speakers in Montreal. As expected, concentration in schools where the target group represents more than 75% of the population is also very different between linguistic subgroups. For example, in Table 110b, one can see that Montreal's data range from 35.1% for Persian to 2.2% for Creole; Toronto ranges from 27.3% for Arabic to 0.9% for Vietnamese; and Vancouver ranges from 2.0% for Persian to 29.0% for Vietnamese. These last two groups also exhibit totally opposite patterns in the three cities.

As expected from its lower median family income, private-school attendance of the target group is slightly lower in the two cities where this data is available. As expected from the generous funding of private schools, in Montreal, the results for all groups are higher. Nevertheless, as can be seen in Table 111, variation between groups is high. It is fascinating to note that the position of Vietnemese and Tagalog on the continuum is opposite in Montreal and Vancouver. This trend, as well as other "same group" cross-sites variations, points to the necessity to better understand what may be hidden beneath language labels, such as region of residence or ethnic origin within the source country.

Table 111
Language used at home: Percentage of the target and comparison groups and selected subgroups attending private schools (Montreal and Vancouver)

Language used at home	(%)
Montreal	
French speakers	36.2
Non-French speakers	22.3
▪ Vietnamese	30.8
▪ Tagalog	2.0
Vancouver	
English speakers	12.0
Non-English speakers	9.0
▪ Vietnamese	4.0
▪ Tagalog	16.0

5.1.2 Educational pathways and academic performance

As stated above, from such a set of characteristics, many of which correspond to risk factors, one would expect a more negative schooling experience than was revealed by the analysis in each site. Skipping the too-complex-to-be-properly-synthesized data on average score in various school subjects, we will focus here on the two descriptive indicators that have been retained for regression analysis (e.g. graduation rates two years after expected and participation in university-bound or selective courses). This will also allow us to base our remarks not mainly on gross numbers, in which differences in the school system are not accounted for, but mostly on odds ratio.

Indeed, for example, when cumulative graduation rates of the target and comparison groups are juxtaposed, as can be seen in Table 112a, they first and foremost show differences in outcomes between the three school systems. But this comparison is unfair. On the one hand, it does not take into account students who graduated in another jurisdiction in Montreal and Vancouver

(because in Toronto, we only know if they transferred there). On the other hand, the very definition of the units studied may have an impact on results. The TDSB is a public board with a rather underprivileged population while the three boards in Montreal cover an area much less socio-economically diversified than the 12 boards in Vancouver.

Table 112a
Language used at home: Cumulative graduation rates within jurisdiction of the target and comparison groups (Montreal, Toronto, Vancouver)

Language used at home	On time (%)	1 year after expected (%)	2 years after expected (%)
Montreal			
French speakers	52.2	58.8	61.6
Non-French speakers	45.5	55.3	59.5
Toronto			
English speakers	48.7	62.0	64.8
Non-English speakers	49.9	62.0	64.5
Vancouver			
English speakers	71.0	75.0	75.0
Non-English speakers	75.0	80.0	80.0

Nevertheless, even with this wide variation across sites, differences between groups are still obvious in each city. As can be seen in Table 112b, this is the case especially in Montreal (82.4% Vietnamese vs. 39.9% Creole), but also in Toronto (78.1% Chinese vs. 46.9% Spanish) and, to a much lesser extent, in Vancouver (87.0% Chinese vs. Spanish 71.0%). Although the three sites share a common high-achieving group, Chinese students, variation in the hierarchy for the rest of the subgroups is widespread. Nevertheless, in the three contexts, Spanish and Black visible minority students (Creole/Somali) tend to be at-risk. The Portuguese case in Toronto warrants further investigation, although this negative profile in educational outcomes has been found in many other contexts. It could reflect a parental strategy that values quick access to work over education. But it could also be linked to the fact that the Portuguese origin group in the TDSB

includes many second- and third-generation plus students. Thus, some of the more achieving students may have declared English as their language used at home.

Table 112b
Language used at home: Cumulative graduation rates within jurisdiction among selected subgroups (Montreal, Toronto, Vancouver)

Language used at home	Montreal (%)	Toronto (%)	Vancouver (%)
▪ Chinese	77.6	78.1	87.0
▪ Vietnamese	82.4	62.3	68.0
▪ Persian	64.9	51.5	73.0
▪ Arabic	66.5	51.6	67.0
▪ Spanish	51.5	46.9	61.0
▪ Creole	39.9	-	-
▪ Portuguese	-	47.3	-

The regression analysis, more limited with respect to linguistic subgroups for the methodological reasons explained above, confirms this tendency. Table 113a shows that, in each context, when control variables are taken into account, the target group clearly succeeds better than the comparison group, especially in Vancouver.

Table 113a
Graduation: Differences between the target group (non-French or non-English speakers) and the comparison group (French or English speakers), with or without control variables (Montreal, Toronto, Vancouver)

City	Only language target group		With control variables	
	Odd-ratio	Sig	Odd ratio	Sig
Montreal	1.08		1.39	***
Toronto	1.26	***	1.35	***
Vancouver	2.14	***	2.12	***

*** = Significant at < 0.001

However, as stated in all the site reports' conclusions, this globally favourable result actually masks major differences between groups. In Table 113b, we kept the common group across sites, the Chinese, two groups which are shared by Montreal and Vancouver, Vietnamese and Spanish, as well as the two groups in Montreal and Toronto who showed the lowest odds ratio, in relation to the comparison group.

Table 113b
Graduation: Differences between selected subgroups and the comparison group, with or without control variables (Montreal, Toronto, Vancouver)

Language used at home	City	Only language target group		With control variables	
		Odd-ratio	Sig	Odd ratio	Sig
Three cities					
Chinese	Montreal	2.70	***	4.08	***
	Toronto	2.08	***	2.04	***
	Vancouver	2.90	***	2.80	***
Two cities					
Vietnamese	Montreal	2.78	***	2.99	***
	Vancouver	0.68	**	1.07	
Spanish	Montreal	0.87		1.0	
	Vancouver	0.46	***	0.68	**
One city					
Creole	Montreal	0.52	***	0.78	*
Persian	Toronto	0.73	*	0.87	**

*** = Significant at < 0.001 ** = Significant at < 0.05 * = Significant at < 0.10

In the three cities, some groups clearly outperform the comparison groups, while others are at the bottom of the scale, even when their characteristics are taken into account (see Table 113c). But one group, the Vietnamese, seems to behave differently in Montreal and Vancouver. As stated earlier, given the limitations of our quantitative approach, these differences can be interpreted from many theoretical perspectives, as confirming either the impact of different family and community values and strategies, positive/negative relationship with the host society or systemic factors such as the teacher's attitude or valorization of specific languages and cultures. Moreover, as mentioned in the Toronto site report, many other features of vulnerability, whether associated with the individual or with the system, are not included in our model.

Table 113c
Graduation: Ranking order of linguistic subgroups included in the regression analysis in each city (with control variables) (Montreal, Toronto, Vancouver)

Montreal	Toronto	Vancouver
Chinese	Chinese	Chinese
Vietnamese	Tamil	Punjabi
Arabic	Urdu	Philippino
	Russian	Other non-English speakers
Other non-French speakers	Other non-English speakers	Vietnamese
Spanish	English	English speakers
French speakers		
Creole	Persian	Spanish

Data regarding the propensity to enrol in a selective course or program of study (see section 1.3.1.2 for site differences in this regard), that largely predicts the likelihood of pursuing higher education, reveal basically the same trends across and within sites, although differences with the target group and between selected subgroups are slightly more pronounced. For the sake of brevity and also due to differences in the definition of the indicator and of the sample population with the descriptive analysis, we will limit ourselves here to results stemming from the regression analysis.

Table 114a
Participation in selective courses: Differences between the target group (non-French or non-English speakers) and the comparison group (French or English speakers), with or without control variables (Montreal, Toronto, Vancouver)

City	Only language target group		With control variables	
	Odd-ratio	Sig	Odd ratio	Sig
Montreal	1.61	***	1.49	***
Toronto	1.73	***	1.82	***
Vancouver	3.54	***	2.73	***

*** = Significant at < 0.001

Table 114b
Participation in selective courses: Differences between selected subgroups and the comparison group, with or without control variables (Montreal, Toronto, Vancouver)

Language used at home	City	Only language target group		With control variables	
		Odd-ratio	Sig	Odd ratio	Sig
Three cities					
Chinese	Montreal	5.90	***	5.87	***
	Toronto	2.56	***	2.86	***
	Vancouver	11.19	***	10.95	***
Two cities					
Vietnamese	Montreal	3.41	***	3.49	***
	Vancouver	2.33	**	3.13	***
Spanish	Montreal	0.77	**	0.70	**
	Vancouver	0.65	**	0.71	**
One city					
Creole	Montreal	0.26	***	0.26	***
Persian	Toronto	0.99	**	0.97	***

*** = Significant at < 0.001 ** = Significant at < 0.05 * = Significant at < 0.10

Table 114c
Participation in selective courses: Ranking order of linguistic subgroups included in the regression analysis in each city (with control variables) (Montreal, Toronto, Vancouver)

Montreal	Toronto	Vancouver
Chinese	Chinese	Chinese
Vietnamese	Tamil	Vietnamese
Arabic	Urdu	Other English speakers
Other non-French speakers	Russian	Punjabi
French speakers	English speakers	Philippino
Spanish	Persian	English speakers
Creole	Other non-English speakers	Spanish

As can be seen in Table 114a, in the three cities, the full target group shows more positive results with regard to their enrolment in selective courses. Moreover, this advantage is more pronounced than was the case for graduation. Among subgroups (Table 114b), the Chinese multiply their

advantage to an odds ratio of more than 10 in Vancouver, an impressive 5.87 in Montreal and a (rather modest) 2.86 in Toronto. But overall, the hierarchy is very similar to that of graduation, except for the Vietnamese in Vancouver and the Persian in Toronto who do better (Table 114c).

These combined trends seem to confirm two conclusions in the literature outlined above: on the one hand, a global positive impact of migration on educational aspirations and resilience and, on the other hand, a clear mitigating effect of cultural factors, for which our language subgroup variable is a proxy. Here again, as stated for graduation, further exploration of these phenomenon, with alternative methodologies, is warranted.

5.1.3 The impact of socio-demographic, schooling process and school level characteristics variables

Notwithstanding the importance of intergroup differences, and what they may hide, many other factors emerged across sites as having a significant impact on the likelihood of target students to obtain a high school diploma and/or to enrol in a course which will permit them to pursue higher education. Bypassing the specific profile of various subgroups, already discussed in site reports and often not very significant, we will focus here on the full target group. In order not to duplicate information, we have synthesized data across sites according to the nine or 10 variables covered by our model, both for graduation and for participation in a selective course, taking into account both the degree of significance of the factor and the value of its odd ratio..[2] While reading Tables 115 and 116, one should also keep in mind that the school variance not explained by our model can be high in some contexts, especially in Montreal and Vancouver. This would indicate that many other characteristics at the school level, such as the leadership of the principal, the programs and services available or elusive notions such as school ethos must also be at stake. Nevertheless, our study permits us to make relevant comments about the characteristics that we studied that have a positive or a negative impact on target students.

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[2] For specific numbers the reader can refer for graduation to Tables 23, 61 and 99 respectively for Montreal, Toronto and Vancouver and for participation to Tables 27, 65 and 103 for the same cities.++ and – signs indicate that the factor is at the same time highly significant and has an odd –ratio well above or beyond 1 . in less clear and congruent situation we have use a single + or – , for example to mark that a factor is only significant at <0.10 or that a significant factor has nevertheless an odd ratio close to 1 ,which would seem to indicate that its impact is rather limited.

Table 115
Graduation: A synthesis of the impact of factors for the target group (non-French or non-English speakers) (Montreal, Toronto, Vancouver)

Variables	Montreal	Toronto	Vancouver
Socio-demographic			
▪ Gender (Female)	++	++	++
▪ Immigrant status (Yes)	n.s.	+	n/a
▪ Median family income	n.s.	+	n.s.
Schooling process			
▪ Age at arrival (Being late)	--	--	--
▪ School change (Yes)	--	--	--
▪ Level of entry (primary or by grade 8/*Secondaire 1*)	n.s.	n.s.	++
▪ Still need linguistic support in high school	--	--	n.s
School characteristics			
▪ Attendance of a private school	++	n/a	++
▪ Attendance of a school with more than 75% of the target group	-	+	n.s.
▪ Attendance of a school identified as challenged	n.s.	n.s	-

n.s. : Non significant n/a : Non available

In terms of graduation, three negative and three positives factors converge across sites. The advantage of female students and students who attend private schools is not surprising, both based on national and international literature and on public perception. Three other schooling process variables behave as would be expected by decision-makers, parents, the community, and academics, e.g. all things being equal, a student who arrives late, who often changes school and who still needs linguistic support in high school is less likely to graduate. Other results or absence of convergence warrant more scrutiny. Some are in line with the literature described above, for example, the fact that the impact of median family income is inconsistent across sites (non significant in Montreal and in Vancouver, and significant in Toronto). This points to the higher discrepancies which exist, among immigrant communities, between their current socio-economic position and their actual cultural and educational capital, largely influenced by their status in the country of origin. It could also be linked to the limitations of our indicator, which does not measure the characteristics of the individuals but those of the enumeration area where the students live. The fact that target students seem to be less affected by attending a school identified as challenged in Montreal than in Toronto and Vancouver is more difficult to

comprehend. But it could be linked to the fact that, as seen above, such schools are actually the norm in Montreal (as the indicator is defined on a Quebec-wide basis) while they represent a much more limited sample of the schools of the TDSB and of the 12 school boards studied in Vancouver. The remaining three inconsistent factors across sites (immigrant status, level of entry into the school system and concentration of the target group) point to the great variability of dynamics and cases that can be hidden by such variables, whose identification are clearly beyond the scope of this general conclusion. Nevertheless, for policy-makers, this finding is interesting, as it shows that none of these three characteristics are clear predictors, on a pan-Canadian basis, of a negative educational experience.

Table 116
Participation in selective courses: a synthesis of the impact of factors for the target group (non-French or non-English speakers) (Montreal, Toronto, Vancouver)

Variables	Montreal	Toronto	Vancouver
Socio-demographic			
▪ Gender (Female)	n.s.	++	n.s.
▪ Immigrant status (Yes)	++	n.s.	n/a
▪ Median family income	+	+	+
Schooling process			
▪ Age at arrival (Being late)	--	n.s.	--
▪ School change (Yes)	--	--.	--
▪ Level of entry (primary) or by grade 8/*Secondaire 1*)	-	n.s.	++
▪ Still needed linguistic support in high school	n.s	--	n.s
School characteristics			
▪ Attendance of a private school	++	n/a	++
▪ Attendance of a school with:			
26-50% of the target group	n.s.	n.s.	+
51-75% of the target group	-	n.s.	n.s.
More than 76-100% of the target group	-	+	--
▪ Attendance of a school identified as challenged	n.s.	n.s.	n.s.

n.s.. : Non significant n/a : Non available

The picture emerging from Table 116 is much less clear, which confirms what was already stated in the three case studies, that is, that the factors explaining resilience towards higher education among youth of immigrant origin seem to be much more complex than those which influence their likelihood of graduation. Three factors are congruent across sites: the attendance of a private school and the number of school changes which have the same impact as on graduation,

as well as median family income, which acquires a better explanatory power. Attendance of a school identified as challenged continues to be inconclusive across sites. Other factors that were highly predictive of graduation, such as gender, age at arrival, and the fact that a student still needs linguistic support in high school, now point in contradictory directions. Another peculiar feature of Table 116 is the new salience of different categories of concentration of the target group in some sites.

Without examining in such detail the factors that influence the likelihood of graduation and of participation in selective courses among the comparison group, a few differences, that are consistent across sites, are nevertheless worth mentioning, as they may have some policy implications. With respect to graduation, two trends are especially interesting. The first one is the overall higher impact of factors linked to socio-economic status, such as median family income which becomes significant in Montreal and Vancouver, and even more significant in Toronto, as well as school challenge, although in a less congruent manner across sites. This shows that socio-economic background plays a greater role in the school success of French or English speakers, of which only a limited percentage are immigrant, confirming the trend identified above for the target population. Schooling process variables also have a greater impact in the three cities, and in some instance, some of the variables considered acquire a significance that they did not have in the target population. This can be explained by the fact that a negative schooling profile (such as an entry into high school with some delay or numerous school changes) is more likely to be associated with social or learning problems for the comparison group. In the case of the target group, it can be explained in part by pre-migratory factors or by the time needed to adjust to the new society. As for factors that predict the probability of enrolling in a selective course for the non-target population, in Toronto and Vancouver, they revealed a pattern that is much easier to understand than that of the target group. Most of the variables considered are significant and their impact, either positive or negative, is as expected. The case of Montreal is more difficult to analyze as many of the variables are non significant there. Nevertheless, gender, median family income, age at arrival and frequency of school change, which are very similar to what is encountered for the target group, are common significant factors across sites, playing, positively or negatively, as expected.

5.2 FUTURE DIRECTIONS

Many provincial and local policy implications, stemming from each city's data, have been identified in the respective case studies. Most of them are context specific and reflect some of the differences in results and factors we have summarized in 5.1, as well as the fact that education is an exclusive jurisdiction of provinces and territories in Canada. Thus, without reviewing them in depth, we will focus on two questions in this last section aiming at identifying future directions for policy-makers and researchers: on the one hand, results that would warrant a coordinated response, or at least some cooperation, between different educational authorities across Canada and, on the other hand, gaps in knowledge, and additional research needed to fill them.

With respect to actions that could be envisioned, three issues might be of interest for provinces and territories, perhaps under the framework of the Canadian Council of Ministers of Education of Canada (CCMEC). The first one concerns the quality of administrative data collected across Canada, especially with respect to the indicators that make it possible to assess the academic performance and educational mobility of minority/immigrant youth. Indeed, it is rather problematic that in some provinces, decision-makers and researchers have to resort to a proxy based on language groups. In a country like Canada, in which immigration is such a central feature of national development, it would seem obvious that schools, school boards or provincial educational authorities should collect data on the country of birth of students and of their parents. Indeed, in the current context, we are largely unable to isolate the specific experience of the second generation, which lies at the core of any evaluation of our integration policy. Moreover, in all case studies, variables that would permit an assessment of the impact of the socio-economic status of students, as compared to other factors, are not of a very good quality. Here again, we had to resort to a proxy, the median family income in the enumeration area in which students live, as no individual data linked to the students and their family were available in any of the sites. Educational authorities should also contemplate collecting other information that reflects the social and cultural capital of families, closely linked to the educational future of their children. These could include the level of education of both parents, whether their schooling was pursued in Canada or abroad, as well as, for immigrants, their occupation in the country of origin.

A second issue, that various educational authorities across Canada might be interested in considering jointly, concerns their comparative results, both for their total student population and various target groups, such as immigrant or ESL/FSL students, as well as the factors that may influence it. Until now, pan-Canadian comparisons, carried out within the framework of the CCMEC, have concerned mostly achievement based on PISA data. However, it is obvious from our comparison (even if it much more limited in scope) that a study of educational pathways and outcomes would probably not produce the same ranking order. The objective of such a review should not be to put the blame on some provinces but to better understand why differences in the delay already accumulated at the end of primary school, as well as in graduation rates, can be so wide across Canada, both for the total student population as well as various subgroups. The structure of the school system, its more or less selective character, the stress it does or does not put on age promotion as well as the impact of the funding of private schools are among the factors that should be considered.

A final issue that we will develop more when discussing knowledge gaps and the need for further research, is subgroup differences in achievement and educational pathways. Although much more understanding of this trend is needed, it should generate a common reflection within and across the various educational authorities on the way their services and programs for ESL/FSL or immigrant students are organized. Special attention should be paid to criteria used to allocate special funds to schools with a high concentration of these target groups, or in some instances schools identified as socio-economically challenged. It is obvious from our analysis that *one size fits all* support is not an evidence-based policy. Indeed, it does not take into account the fact that our target group, and in some instances, schools where it congregates, have a higher odd ratio of graduating than the comparison group, nor the wide variation across subgroups where one finds students four times more or less likely to graduate than the total student population.

In terms of knowledge gaps and research needed to fill them, the list could be quite extensive. Indeed, it is obvious that the conclusions emerging from our site analysis and comparative trends generated many new questions. Nevertheless, we will focus here on four priorities, largely shared across sites. Some of these topics could be more clearly understood if there was better data collection by local/provincial authorities, but short of this, this could be achieved through

surveys of representative samples. In other instances, a qualitative methodology would be recommended.

The first issue concerns phenomena hidden beneath the inter-group differences we encountered, both in terms of graduation and enrolment in selective courses or programs of study. We first need to study specific groups to understand what lies behind the common label that defines them. Are we actually speaking of the same group when using language used at home or even region of birth? For example, are the Vietnamese in Montreal, Toronto and Vancouver or their parents, coming from the same rural or urban region of Vietnam? Are they ethnically Vietnamese or actually members of the Chinese minority of Vietnam? Going further, and assuming that intra-group differences are taken into account, which explanatory system should we use to understand the very different educational experience of various groups? An exploration of parent and community values, and most of all of the strategies they actually implement to support the schooling of their children would be needed, as well as a better understanding of the relationship specific groups of youth develop with schooling. The role of various characteristics associated with vulnerability as well as of systemic factors should also be determined.

Another significant gap in our understanding of the educational experience of immigrant youth concerns the impact of the socio-economic status of their family. As seen above, our indicators in this regard are not adequate. But even if individual data regarding students and their families become available, we would still need to explore this factor through other alternative strategies. For example, one could ask if there exists a threshold of basic revenue under which even extremely motivated immigrant parents cannot cope and continue supporting the positive school performance and schooling outcomes of their children? We should also better understand how SES interacts, positively or negatively, with other aggravating or mitigating factors linked to vulnerability or resilience.

Exploring the way in which the impact of various school factors actually materializes is also needed. For example, it will disconcert strong proponents of public education to learn that even when the globally much more positive characteristics of their student body are accounted for, private schools, at least in Montreal and Vancouver where this data is available, seem to be doing

a better job than public schools. Why is it so? To answer this question, we would first need to determine the extent to which other factors linked to the student body that were not taken into account in our study, such as learning skills, are at stake (it is well known that many private schools require entrance examinations). However, beyond that, if an advantage is still found, one would need to use qualitative methodology to identify the specific ethos of such schools that explain higher achievement among both majority and minority youth. The same type of analysis should be carried out within the public sector, where variance across schools with a rather similar intake of students is widespread.

Finally, in an international context where the immigrant/minority label is often a euphemism for educationally at-risk students, a comparative assessment of the Canadian experience in this regard, with its positive trends and results, would be of great interest. It is often considered abroad that the Canadian success story regarding the integration of immigrants can be linked to the selective nature of our immigration policy, at least as pertains to a little over half of the total influx. But, on the education front, our data show that something else is at stake, within the communities themselves or within our school boards and schools, as immigrant/ minority youth clearly succeed better than their characteristics or that of their families and of the schools they attend would predict. This is not a trend unknown in other contexts, but given the more limited scope of SES variation in many foreign contexts, it is more difficult to isolate. Without engaging in overly ambitious international projects that would probably require more time and resources from funders and researchers than available in the short run, a first and relatively easy step in that direction would be to conduct a secondary meta-analysis of the extensive comparative research that already exists or is currently underway across Europe and across different educational jurisdictions in the USA (and if possible in another selective immigration country such as Australia or New Zealand). This would permit us to assess the specificity of the Canadian case regarding the academic performance and educational pathways of youth of immigrant origin and to identify what could be learned from other contexts, either at the policy level or to fill in some of the gaps in our knowledge.

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