



More Than a New Country: Effects of Immigration and Home Language on Elementary Students' Academic Achievement Overtime

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Abstract: This study investigated the effects of immigration and home language on academic achievement over time. Using data from Ontario's Assessments of Reading, Writing and Mathematics administered to the same students in Grades 3 and 6, logistic regression was used to predict if students achieved proficiency in Grade 6 if they were not proficient in Grade 3. The results indicate that home language or interactions with home language are significant in most cases. In addition, students who speak a language other than or in addition to English at home are, in general, a little more likely to be proficient at Grade 6. Most students who were born outside of Canada were significantly more likely than students born in Canada to stay or become proficient in Reading, Writing, and Mathematics by Grade 6. These results highlight the importance of considering the enormous heterogeneity of immigrants' experiences when studying the effects of immigration on academic performance and the dire limitations of datasets that do not collect such data.

Keywords: Student Achievement; Immigrant Education; Standardized Testing

Más que un nuevo país: los efectos de la inmigración y la lengua materna en los logros de los estudiantes de primaria a través del tiempo.

Resumen: Este estudio investigó los efectos de la inmigración y la lengua materna en los logros académicos. Utilizando datos de las Evaluaciones de Lectura, Escritura y Matemáticas en Ontario

que se administran a los mismos estudiantes en los grados 3 y 6, se utilizó una regresión logística para predecir si los estudiantes que estaban a un nivel en el Grado 6, no eran competentes en grado 3. Los resultados indican que la lengua materna o la interacción con el idioma del hogar son importantes en la mayoría de los casos. Además, los estudiantes que hablan un idioma distinto del Inglés en sus casas son, en general, tienen más probabilidades de ser competentes en el grado 6. La mayoría de los estudiantes que han nacido fuera de Canadá fueron significativamente más propensos que los estudiantes nacidos en Canadá para permanecer o llegar a ser competentes en lectura, escritura y matemáticas en el 6 ° grado. Estos resultados resaltan la importancia de considerar la enorme heterogeneidad de las experiencias de los inmigrantes en el estudio de los efectos de la inmigración sobre el rendimiento académico y las limitaciones graves de conjuntos de datos que no recogen datos sobre heterogeneidad.

Palabras clave: logros estudiantiles; educación de inmigrantes; pruebas estandarizadas

Mais do que um novo país: os efeitos da imigração e da realização língua em alunos do ensino fundamental ao longo do tempo.

Resumo: O presente estudo investigou os efeitos da imigração e a língua nativa no desempenho acadêmico. Usando dados de avaliações da Leitura, Escrita e Matemática em Ontário que são administrados para os mesmos alunos nas classes 3 e 6, foi utilizada uma regressão logística para prever se os estudantes que estavam em um nível de grau 6, não eram competentes no grau 3. Os resultados indicam que a língua materna ou da interação com a língua de origem são importantes na maioria dos casos. Além disso, os alunos que falam uma língua diferente do Inglês em casa são, em geral, mais propensos a ser proficiente em grau 6. A maioria dos alunos que nasceram fora do Canadá eram significativamente mais propensos do que os alunos de origem canadense, de permanecer ou se tornar proficientes em leitura, escrita e matemática na 6^a série. Estes resultados destacam a importância de se considerar a enorme heterogeneidade das experiências dos imigrantes no estudo dos efeitos da imigração no desempenho acadêmico e limitações graves de conjuntos de dados que não recolhem dados sobre a heterogeneidade.

Palavras-chave: o desempenho do aluno, a educação de imigrantes testes padronizados.

Introduction

Accelerated immigration to Ontario's cities over the past decade from non-traditional immigrant source countries (traditionally immigrants to Canada came from Anglo-Saxon countries and the United States) has resulted in a student body from increasingly linguistically and culturally diverse households. For example, the Toronto District School Board serves about 280,000 students in one of the most diverse and multicultural education systems in the world. More than 24 percent of the students were born outside of Canada (Yau & O'Reilly, 2007). According to Canada's 2006 census (Statistics Canada, 2007), one in every five people living in Canada was born outside of Canada and 80 percent of the foreign-born population spoke a mother tongue¹ other than English or French, the two official languages of Canada. Citizenship and Immigration Canada (2008) reported that the most common mother tongues spoken by permanent residents to Canada in 2008 were (after English) Mandarin, Arabic, Tagalog, Spanish, Punjabi, French, Urdu, Korean, Russian, Chinese, Farsi, Hindi, and Tamil. The linguistic profile of the immigrants being schooled in Canada reflects the heterogeneity of the leading source countries.

Much has been written about the challenges children face when moving between countries, including changes in culture, school organization and curriculum, and, often, language. Few studies,

¹ Defined by Statistics Canada as the first language a child learns at home and still understands

however, have quantified the effects on academic performance; none, to my knowledge, has investigated the effects of immigration and home language on academic performance at more than one point in time. This study seeks to fill that gap by examining the patterns of academic performance of immigrant students versus non-immigrant elementary students in Ontario on a standardized test. In addition, international studies of high school students have indicated that immigrant students in Canada tended to perform better than non-immigrant students. This is in contrast to the concerns about the low academic performance of immigrants in other countries (OECD, 2006). The enormous heterogeneity of immigration experiences complicates the study of the effects of immigration on students' academic performance (Noguera, 2004). Students vary widely in the amount of cultural changes they face when they immigrate and these can vary by whether they speak at home the language in which they receive their schooling. Research on immigration is further complicated by the fact that many students who are second or third generation immigrants speak the language of their country of origin when at home, sometimes to the exclusion of the language of classroom instruction (Glick & Hohmann-Marriott, 2007). The research on immigration is also complicated by differences among receiving countries in attitudes (acceptance versus non-acceptance) towards immigration and provisions made for supporting immigrants (OECD, 2006).

Developing an informed understanding of the performance in large-scale standardized assessment of students who have experienced country mobility and/or who speak another language (other than or in addition to English) at home has important policy ramifications for public schools and educational policy makers. The ramifications include budget planning for instructional and operational resources, staffing, training, and research. For example, such information has the potential to help Ontario educators accomplish the goal of reaching every student, attaining and maintaining high levels of student achievement, closing achievement gaps among groups, and ensuring that every student reaches her or his full potential (Ontario Ministry of Education, 2008a).

Immigration, Language and Student Achievement

Despite the challenges encountered, limited research of the effects of immigration on students' academic success has been conducted; some with discouraging results. For example, the Programme for International Student Assessment (PISA) found that, although performances varied by country, in 14 selected member countries of the Organisation for Economic Co-operation and Development (OECD), the first- and second-generation immigrant students on average did not perform as well as the locally-born students. The performance gap was more than 39 score points or "the equivalent of a school year's progress" (Council of Ministers of Education Canada, 2006, p. 5). Other studies have been more positive, finding that generally immigrant students have higher levels of motivation (Suárez-Orozco & Qin-Hilliard, 2004), higher expectations for attending post-secondary institutions (Krahn & Taylor, 2005) and higher rates of university attainment than non-immigrant students (Abada, Hou, & Ram, 2008).

Results of available national and international studies (The Hospital for Sick Children, 2005; Huang, 2000; OECD, 2006) about middle school and secondary students vary: Large-scale international studies of secondary school students (e.g., OECD, 2006) show significant gaps in performance in some receiving countries, with the immigrant students and those with languages different from the language of instruction tending to be lower performers. In a few receiving countries, including Canada, the gaps have tended to be smaller or even reversed, with the immigrant students performing better.

The OECD (2006) analyzed performance in Mathematics, Reading, Science, and Problem Solving and the self-reported academic engagement of 15-year-old first and second-generation students versus native-born students (students born in the specified country) from 17 countries on the PISA 2003. The results for Reading and Mathematics showed that, although immigrant students

generally displayed positive attitudes towards learning, there was considerable variation between countries in the differences in academic performance between the immigrant students and the native-born students, with immigrant students generally underperforming relative to native-born students. For example, the underperformances were most pronounced in Austria, Belgium, Denmark, France, Germany, the Netherlands and Switzerland. Immigrant and native-born students performed at similar levels in Australia, Canada, and New Zealand. Also, in Canada, second-generation students performed significantly better than first-generation students and the gap between immigrant and native-born students in some countries appeared to decrease across immigrant generations.

The comparable performance of Canadian immigrant students with Canadian-born students at the secondary level does not seem to be replicated at the elementary level. In an earlier study, Huang (2000) performed cross-national comparison analyses on comprehensive and reliable test information from the TIMSS 1995 administration to eight- and nine-year-old students in Grades 3 and 4. The results indicated that in the United States, England, and Canada, immigrant children lagged behind in math and science achievement. In addition, the study found a strong negative relationship between speaking a language other than English (the language of instruction in the countries studied) at home and math and science performance.

Limited Canadian studies have also investigated immigrant students' dropout rates and their perceptions of the causes. The causes vary. In Ontario, The Hospital for Sick Children (2005) reported a link between dropping out of school and immigrant characteristics. They interviewed and conducted focus groups with students who had dropped out of school in Ontario and found that for first-generation immigrants some of the main risk factors leading to school dropout included language difficulties, inappropriate linguistic assessment, lack of language instruction, non-recognition of prior educational achievements, and unfamiliarity with the Canadian school system. The study also found that the student's age at immigration was a factor in whether the student dropped out of school or not.

Language and Academic Achievement

Language plays an important role in education and the ability to understand the language of classroom instruction is critically important for successful school outcomes (Ontario Ministry of Education, 2008b). OECD (2006) reported that language spoken at home was an important factor in students' learning outcomes in almost all of the 17 countries included in a comparative study of PISA 2003 results. The PISA report showed that, with the exception of students from Canada and Australia, immigrant students who spoke a different language at home than the language of instruction tended to perform at lower levels in Mathematics than both immigrant students who spoke the language of instruction at home and native-born students.

In Ontario, Brown and Sinhay (2008) linked demographic information with individual report card achievement data for 31,548 students, comprising 92 percent of the Toronto District School Board Grade 7 and Grade 8 student body in 2006. The results showed that the students' academic achievement varied across language groups, with the majority of students from some language groups performing at or above the provincial standard (Level 3) for Reading and Writing. For example, the Reading results for the highest performing language group were: Romanian (82 percent), Korean (79 percent), Hindi (78 percent), Chinese (77 percent), Bengali (75 percent), and Serbian (75 percent). The scores can be compared to the 64 percent of English-speaking students who achieved the provincial standard.

In a more detailed study, Worswick (2004) analyzed national data from the National Longitudinal Survey of Children and Youth (NLSCY) from Statistics Canada for the first three survey years (1994-1995, 1996-1997, and 1998-1999). The study found that differences in

performance between three groups of children varied according to the age of the children, the subject areas tested, and the number of years the child had been in Canada. The results showed that immigrant children in the early grades of elementary school had lower vocabulary scores than the children of Canadian-born parents; however, differences in Reading and Mathematics scores were small. The results of the vocabulary test also showed that children with Allophone² immigrant parents are at a substantial disadvantage in the early school years. In Reading, the seven-year-old children of allophone immigrant parents who had only been in Canada for about three years scored lower than the other children. However, there was a positive linear relationship between years of residence in Canada and the children's performance on the Reading test. For example, by age 14, the child of an Allophone immigrant parent whose parent arrived in Canada when the child was four had no significant difference in reading performance relative to a 14 year old child of Canadian-born parents.

Critical View on the Impact of Language on Results of Large Scale Assessments

Cummins (2009) criticized the conclusions drawn from analyses of PISA 2003 results that suggested that knowing the language of classroom instruction was crucial to students' school success and that the low PISA results obtained by immigrant children meant that those children had not been given sufficient opportunities to be immersed in the language of classroom instruction. Cummins argued that policymakers should not interpret the 2003 PISA results as evidence that students should be culturally and linguistically assimilated or that the additional language was detrimental to students' academic success.

Cummins (2009) noted that, in Canada and Australia where the immigrant students actually performed better than the native students, no relationship was found between home language and student achievement. Further, he argued that any relationship between home language use and achievement disappeared in the majority of the countries when there were controls for SES and other background variables. Cummins also suggested that language spoken at home did not account for achievement but that it might have been used by as a proxy for variables such as socioeconomic status or length of residence in the new country.

From the results of Cummins's research and other studies in Canada and internationally (Coelho, 2007; Corson, 1993) it would appear that the association between academic achievement and home language is not straightforward.

However, regarding literacy supports for children not speaking English, Coelho (2007) suggests that, because literacy instruction in Ontario's English-language schools is in English, children who speak a home language other than English require particular attention, consideration, and support in school in order to overcome the discrepancy between their first language and the language of classroom instruction. However, she also suggests that "they do not all receive support from an English as a second language teacher. In schools where there is an ESL teacher, support is usually provided only for the first year or two and mostly to newcomers rather than Canadian-born children" (p. 1).

Other Challenges to Immigrant Student Achievement

When a student moves from one country to another she or he may encounter differences in attitudes, customs, or ways of doing things. The immigrant can also encounter negative attitude. For example, Lee and Anderson (2009) noted that the word 'immigrant' in educational literature often "has a deficit association with social problems, poverty, cultural deficits, linguistic deficits, low achievement, low parental involvement and being at-risk for academic failure" (p. 191). Furthermore,

² Mother tongue is neither English nor French, Canada's two official languages.

Arzubiaga, Noguerón, and Sullivan (2009) reviewed 32 peer-reviewed articles and found that 25 percent of them specifically referred to children's language differences as deficits.

An example of teachers' negative, stereotypical attitudes is provided by James (2002, as cited in James, 2004), who interviewed six new teachers in a study of Toronto high schools and found low expectations and negative stereotyping reflected in how the teachers spoke about their students:

Some students were thought to be *growing up in* immigrant, blue collar and/or single-parent households on special assistance. (pp. 3-4; italics in original)

The immigrant may also find that differences in ethnicity and culture and the uneven distribution of power place him or her in a minority status with the majority population (Arzubiaga, Noguerón, & Sullivan, 2009; Ryan, 2003). The term 'visible minority', which some might regard as a marginalized term, was coined by the Canadian government to describe immigrants who are not Anglo-Saxon (mainstream population) in origin.

In summary, the literature has presented a picture of immigrant students versus native-born students in Canada that shows varied results in academic performance depending on whether the students were in high school or elementary school. Immigrant students in high school tend to outperform the native-born students even when the language spoken at home is not English. This has led to the assumption that Canadian settlement policies must be at least in some part be responsible for the higher academic achievement in high school, which is contrary to what is generally found in other countries. In addition, at the elementary level the literature, also limited, shows that contrary to the high school situation immigrant students perform at a lower level than non-immigrant students. They do appear to catch up based on the length of time in Canada. Literature to substantiate results at both high and elementary school levels has been limited by the unavailability of longitudinal data in standardized tests in Canada. This study marks the first time that standardized data on the academic performance of elementary school students have been available at two time points.

The literature also shows that immigrant students in Canada can face challenges to their academic achievement; for example, teachers having low expectations of students. Students have cited language barriers among the reasons for potentially dropping out of school. The literature shows some difference of opinion in the way language differences are dealt with in Ontario's education system. On the one hand there is the systemic belief and practice in Ontario, that academic success is supported by the students' use of the language of classroom instruction. On the other hand, research into the academic performance of students with a second language has shown that academic success can be achieved without the use of the classroom language of instruction.

Theoretical Framework

An important part of any study in sociology, particularly a study that seeks to contribute meaningfully to the process of researching the education of immigrants in Canada and endeavors to affect change in policy, is to provide evidence based on a theoretical framework that policymakers can rely on for decision-making. The theoretical perspective that best fits this study is Bourdieu's (1984) social and cultural capital reproduction theory³. Bourdieu's (1984) theory of social capital and

³ Other possible theoretical perspectives include, for example, Ogbu and Simon's (1998) classification of immigrants, and Portes and Zhou's (1993) patterns of assimilation. However, the data set from the current study provides no information about student's place of birth, or whether they were voluntary and involuntary immigrants or refugees making it difficult to use Ogbu and Simmon's classification system without making questionable assumptions. Likewise, tenuous assumptions would need to be made to suggest the process of

cultural reproduction identifies school as an agent for cultural reproduction where the success of the students depends on knowing and internalizing the norms and customs that are valued by the school (cultural capital). These norms and values are salient and shifting and are characteristic of the middle and ruling class of the dominant group (White, Anglo-Saxon in Canada). They are learnt through interaction with family and social acquaintances and reinforced by institutions such as the school. Teachers recognize the cultural capital of the dominant group as preferred in the classroom and a student's success in school is determined in part by how much of that cultural capital the student has (Apple, 2004; Bourdieu, 1984).

One of the roles of school is to provide students with the social, cultural and academic skills that will not only enable them to become part of the mainstream society but also provide them with the opportunity to move up the socio-economic ladder, thus increasing their social capital. According to this view, schools do this through exposing students to and enculturating them into the mainstream's societal norms and values (Goodlad, 1979). Because the system is hegemonic, the only system that the students are exposed to is that of the mainstream.

Within Ontario, we can use Bourdieu's (1984) theory to compare the probable cultural capital specifically of those who were born outside of Canada, and those who speak another language with those who were born in Canada and speak English. In Ontario the schooling and curriculum are based on values and traditions originating from Anglo-Saxon Europe. Students entering these schools traditionally would be expected to have originated from this common historical base. Many of Ontario's teachers received their training with the expectation that students either possess this cultural capital or aspire to be part of it. To achieve successful school outcomes, it is not enough for the students to conform to the requirements of the known curriculum; they must also be in conformity with the 'hidden curriculum' (the unspoken values, norms and assumptions found in the curriculum materials, instructional delivery methods, teaching methods and organizational structure of the education system). Bourdieu's concept of cultural capital suggests that in the Ontario school system, a student demonstrates that he or she belongs and could be successful in school if the student speaks English, the language of classroom instruction. The student must be capable of speaking English in the acceptable form (for example, not speaking a working class vernacular or dialect and using an acceptable accent) in both formal and informal communication.

When immigrant children's social and cultural characteristics are examined through the lens of Bourdieu's framework, they may lack the cultural or social capital that could ensure their academic success. That these students were born outside of Canada, and might have originated from non-White countries place many of them outside the heritage traditionally valued by teachers and the system. The procedure in Ontario schools is that students can qualify for language support designed for qualified English learners. The conditions for English support are very specific and students born in Canada but who speak another language other than or in addition to English at home do not qualify.

This Study

This study seeks to add to our understanding of elementary students' academic development by investigating each child's performance on large-scale assessments at two time points (in Grades 3 and 6) in relation to two factors: (1) whether they immigrated to Ontario from another country, and (2) whether they speak the language of classroom instruction (English) at home. Within the context of students who immigrated to Canada, the study also examines the effect of the students' number of years in Canada. Specifically, this study seeks to answer the question:

assimilation (a la Portes and Zhou) for those students who moved to Canada. Therefore both of these theoretical perspectives have not been considered in any depth in this study.

What is the likelihood that students in Ontario public schools who were born outside of Canada and who speak a home language other than or in addition to English would have achieved proficiency in the Grade 6 provincial assessment if they did not in the Grade 3 provincial assessment?

In addition to its separation of country mobility and language, what makes this study unique is its melding of sociological and psychometric perspectives – an approach that is still quite new (Moss, 2008). Many Canadian studies on immigrant students have used qualitative research methods to ‘give voice’ to the experiences of immigrant students in the school system. This study adds to the existing research by providing the quantitative analysis that policymakers may need to support evidence-based decision making; at the same time the study uses the literature to describe the social context that is important to interpretation of the results of the study.

More specifically, the following hypotheses derived from the Bourdieu's theory of Social Capital and Cultural Reproduction are examined in this study for students who were not proficient in Grade 3 assessments of reading, Writing and Mathematics:

Students who were proficient in Grade 3 assessments in reading, Writing, and Mathematics have a greater predicted probability of being proficient in Grade 6 assessment of Reading, Writing and Mathematics than students who were not proficient in the Grade 3 assessments of Reading, Writing, and Mathematics.

Students who speak English only at home have a greater predicted probability of being proficient in Grade 6 assessment of Reading, Writing and Mathematics than students who speak another language at home in addition to English.

Students who were born in Canada have a greater predicted probability of being proficient in Grade 6 assessment of Reading, Writing and Mathematics than students who move to Canada.

Immigrant students who lived in Canada for 5 years or more have a greater predicted probability of being proficient in Grade 6 assessment of Reading, Writing and Mathematics than students who lived in Canada for less than 5 years.

Limitations of Study

This study uses data from Ontario's 2007-2008 Junior Assessment of Reading, Writing and Mathematics (administered to all students in Grade 6), with linked assessment results from the 2004-2005 Primary Assessment of Reading, Writing and Mathematics (administered to all students in Grade 3).

Ontario does not include student ethnicity or student place of birth in their collection of standardised assessment data. As a result I cannot disaggregate the immigrant students by ethnicity or country of origin. In this study, demographic data for each student includes number of schools attended, whether or not the student were born in Canada, length of time in Canada, and if English was mainly spoken at home.

Adding value to the existing literature, is the fact that the 2007-2008 dataset the study uses represents the first time that a large dataset that includes students from the entire province has, over more than one time period, tracked the assessment results for a cohort of Ontario students who were born outside of Ontario and who speak a language other than or in addition to English at home.

Data Collection and Analysis

Ontario's 2007-2008 Junior Assessment of Reading, Writing and Mathematics (administered to all students in Grade 6), with linked assessment results from the 2004-2005 Primary Assessment of Reading, Writing and Mathematics (administered to all students in Grade 3) have no punitive consequences for students; the assessments are intended principally to measure school performance. The assessments consist of multiple-choice and constructed-response items that are aligned to the

expectations of the Ontario curriculum. The Primary assessment is intended to test the students' learning obtained in the primary division (Grades 1 to 3) and the Junior assessment tests the knowledge obtained in the junior division (Grades 4 to 6).

The students' performance is reported by the level attained for each of Reading, Writing and Mathematics. There are 4 levels, with Level 3 designated as the provincial standard; that is, students achieving Level 3 or Level 4 are considered proficient in the subject area. The results are reported to the schools privately by individual student and are publicly aggregated by school and by school district. The results also show demographic data for each student, including number of schools attended, whether or not the student were born in Canada, length of time in Canada, and if English was mainly spoken at home.

The dataset analyzed in this study was obtained from Ontario's Education Quality and Accountability Office (EQAO). The dataset initially contained records for 146,790 students; of these 129,700 were receiving classroom instruction in English (the rest attended French-language schools or French-immersion programs within English-language schools). After also removing students who were missing information about their home language, immigration status, year they entered their current school, or their test performance, 121,037 students receiving classroom instruction in English remained for use in these analyses.

Analyses

The Grade 3 and Grade 6 assessments, although designed to measure the same areas of the curriculum, are not vertically equated, therefore it is not possible to analyze the differences in scores between the two assessments. Instead, this study will focus on whether a student who did not attain the standard in Grade 3 assessment, had achieved the grade-appropriate standard for proficiency (Level 3 and above) in each of the three subject areas on the Grade 6 assessments.

Logistic regression was used to analyze the likelihood or odds of achieving proficiency at Grade 6 in the Reading, Writing, and Mathematics assessments in relation to the assessment results obtained in Grade 3 and to a child's country mobility, years in Canada, and home language. A student's performance in each of Reading, Writing and Mathematics in Grade 6 was coded 0 = Not Proficient and 1 = Proficient. The predictor variables were also coded dichotomously: whether or not the student achieved proficiency in Grade 3 (coded 0 = Not Proficient and 1 = Proficient), whether the student speaks another language at home instead of or in addition to English (coded 0 = English only at home and 1 = Another language instead of or in addition to English at home), and whether the student was born in or moved to Canada (0 = Born in Canada and 1 = Moved to Canada). The reference groups for the independent variables are Grade 3 Not Proficient, English at home, Born in Canada, and Remained at same School. The statistical software SPSS 17.0 was used for the computations.

A series of logistic regression analyses was conducted to determine the added predictive value of each of the four predictor variables. These analyses were repeated separately for each subject area. The log odds of Grade 6 proficiency was first predicted by Grade 3 proficiency, as Grade 3 proficiency was expected to be the strongest predictor of the log odds of Grade 6 proficiency. Specifically, those students who are proficient according to the Grade 3 provincial standards are likely to also be proficient at Grade 6. Home Language was added next so that the contribution of the variable, Country Change, could be determined by controlling for the predictive power of these variables.

Logistic regression was also used to analyze the likelihood (odds) of achieving proficiency at Grade 6 in the Reading, Writing, and Mathematics assessments in relation to a student's gender and the number of years that a student lived in Canada. The variable "Gender" categories were coded male = 0 and female = 1. The dichotomous variable "Years in Canada" was coded in two categories:

“Lived in Canada for 5 or more years” = 0 and “Lived in Canada for less than 5 years” = 1. I assumed that students living in Canada for five years or more had all of their schooling in Canada regardless of the language spoken at home. The reference groups for the independent variables are “Male” and “Lived in Canada for 5 or more years”.

Results

Table 1 shows the characteristics for 121,037 students. 106,917 (88 percent) were born in Canada and 14,120 (12 percent) had moved to Canada and 4,819 (4 percent) had been in Canada for less than five years. In addition 55 percent spoke English only and 45 percent spoke English and/or another language at home. The students, who were in Grade 3 in 2003-2004 and in Grade 6 in 2007-2008, were, with few exceptions, born in 1994. Overall, 54 percent of the students achieved academic proficiency in Reading in Grade 3, 56 percent in Writing, and 60 percent in Mathematics. In Grade 6, higher percentages of students achieved proficiency: 68 percent in Reading, 68 percent in Writing, and 63 percent in Mathematics.

Table 1.
Students' Characteristics

Characteristics	N	Coded	%
Total Students	121037		100
Grade 6 Achievement			
Grade 6 Reading: Not Proficient	38766	0	32
Grade 6 Reading: Proficient	82271	1	68
Grade 6 Writing: Not Proficient	37631	0	31
Grade 6 Writing: Proficient	83406	1	69
Grade 6 Mathematics: Not Proficient	45280	0	37
Grade 6 Mathematics: Proficient	75757	1	63
Grade 3 Achievement			
Grade 3 Reading: Not Proficient	55523	0	46
Grade 3 Reading: Proficient	65514	1	54
Grade 3 Writing: Not Proficient	53227	0	44
Grade 3 Writing: Proficient	67810	1	56
Grade 3 Mathematics: Not Proficient	47742	0	39
Grade 3 Mathematics: Proficient	73295	1	61
Language			
English only	66785	0	55
Another Language Instead of or in Addition to English at Home	54252	1	45
Immigration			
Born in Canada	106917	0	88
Moved to Canada	14120	1	12
Time in Canada			
Lived in Canada For 5 or More Years	116218	0	96
Lived in Canada For less Than 5 Years	4819	1	04
Gender			
Male	62329	0	51

Female	58708	1	49
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Table 2 shows that 39 percent of the students who were born in Canada spoke a language other than or in addition to English.

Table 2.

Distribution of Students by Immigration and Home Language

Home Language	Total Born in Canada	Total Moved to Canada	Total Students
English only	65276 (61%)	1509 (11%)	66785 (55%)
Another language instead of or in addition to English	41641 (39%)	12611 (89%)	54252 (45%)
Total	106917 (100%)	14120 (100%)	121037 (100%)

Note. Percentages, shown in brackets, are calculated out of the total of 121,037 students.

Logistic regressions were conducted to determine whether Grade 3 proficiency was a statistically significant predictor of Grade 6 proficiency. The results are summarised as Model 1 in Table 3. As expected, the logistic regressions for each of the subject areas indicate that Grade 3 proficiency is a strong predictor of Grade 6 proficiency. Further analyses were conducted to explore the additional predictive power of Home Language, Country Change, Time in Canada, Gender, and Grade 6 Proficiency controlling for Grade 3 Proficiency. Table 3 also shows the logistic regression coefficients for Model 5 containing all of these predictor variables. While the coefficients are significant, there appears to be very little difference in the odds for the two language groups (odds are close to 1).

In contrast, students who moved to Canada were more than one and half times more likely to be proficient on the Grade 6 Reading assessments than students born in Canada. Similar odds were found in Writing. For Years in Canada, there was no significant difference in Reading and Writing for between students who were in Canada for less than 5 years and those in Canada for five years or more. The likelihood was closer to 1 for the students in both these subject areas. The results changed for Mathematics; in this case, there is a significant difference between the students in Canada for less than 5 years and those in Canada for 5 years or more. The students in Canada for less than 5 years are 1.6 times more likely to be proficient in mathematics than the students who were in Canada for 5 years or more.

Table 4 distinguishes between groups of immigrant students who lived in Canada for more than or less than 5 years. This variable is shown not to be statistically significant in Model 3 while the Variable Change School is statistically significant. Descriptive analysis shows that all students who lived in Canada for less than 5 years and a vast majority of immigrant students (approximately 89 percent) who lived in Canada for more than 5 years changed schools. This suggests that the variable “Change School” is a less meaningful category for distinguishing between groups of immigrant students.

The focus of this study is on whether or not students achieved proficiency in Grade 6 if they did not achieve proficiency in Grade 3, given that they may have experienced one or both of the following: been born outside of Canada, or speak a language at home other than English. Table 4,

therefore, shows the likelihood (the number of students who achieved proficiency over the number who did not) and the probability (the number of students who achieved proficiency out of the total number of students) of achieving proficiency at Grade 6 for students with different combinations of proficiency at Grade 3, country mobility including time in Canada and home language. I will discuss the results for each subject area in turn.

Table 3.

Parameter Estimates from the Logistic Regression Model Predicting Grade 6 Proficiency from the Independent Variables

	Model 1			Model 5		
	Coefficient	Standard Error	Exp (B)	Coefficient	Standard Error	Exp (B)
<i>Reading</i>						
Constant	-.16			-.52		
Grade 3 Proficiency	2.04***	.01	7.65	2.07***	.01	7.91
Home Language				.12***	.01	1.13
Country Change				.49***	.03	1.63
Gender				.50***	.01	1.66
Years in Canada				-.07	.04	0.93
	n = 121037			n = 121037		
	-2 Log Likelihood = 128070.70			-2 Log Likelihood = 126065.46		
<i>Writing</i>						
Constant	-0.09			-0.56		
Grade 3 Proficiency	1.87***	.014	6.50 2	1.87***	.01	6.49
Home Language				0.19***	.01	1.21
Country Change				0.47***	.03	1.60
Gender				0.74***	.01	2.10
Years in Canada				-.02	.04	.98
	n = 121037			n = 121037		
	-2 Log Likelihood = 129654.82			-2 Log Likelihood = 125924.29		
<i>Mathematics</i>						
Constant	-0.56			-0.848		
Grade 3 Proficiency	1.93***	.013	6.86 6	2.05***	.01	7.80
Home Language				.25***	.01	1.29
Country Change				.57***	.03	1.77
Gender				.03**	.01	1.03
Years in Canada				.47***	.04	1.60
	n = 121037			n = 121037		
	-2 Log Likelihood = 136579.73			-2 Log Likelihood = 134306.23		

*** $p < .001$. ** $p < .05$.

Table 4.

Likelihood and Probability of Grade 6 Proficiency by Grade 3 Proficiency, Immigration, Home language and Years in Canada

Home Language	Not Proficient in Grade 3			
	Total Born in Canada	Total Moved to Canada	Moved to Canada Lived in Canada 5 or more years	Moved to Canada Lived in Canada less than 5 years
<i>Proficient in Reading: Likelihood (Probability)</i>				
English only	0.74 (0.42) n = 11704	1.31 (0.57) n = 491	1.11 (0.53) n = 220	1.55 (0.61) n = 271
Another language instead of or in addition to English	0.87 (0.46) n = 8939	1.27 (0.56) N = 4363	1.32 (0.57) n = 2119	1.23 (0.55) n = 2244
<i>Proficient in Writing: Likelihood (Probability)</i>				
English only	0.77 (0.44) n = 12218	1.38 (0.58) n = 489	1.09 (0.52) n = 212	1.72 (0.63) n = 277
Another language instead of or in addition to English	0.96 (0.49) n = 8355	1.48 (0.60) n = 4322	1.50 (0.50) n = 1940	1.47 (0.60) n = 2382
<i>Proficient in Mathematics: Likelihood (Probability)</i>				
English only	0.43 (0.30) n = 7240	0.94 (0.49) n = 407	0.69 (0.41) n = 161	1.26 (0.56) n = 246
Another language instead of or in addition to English	0.57 (0.36) n = 5747	1.30 (0.56) n = 3961	0.98 (0.50) n = 1523	1.62 (0.62) n = 2438

n = Number of students reaching Grade 6 Proficiency

As expected, the results for Reading, Writing and Mathematics show that students who were proficient in Grade 3 (regardless of the presence of other factors) were clearly more likely to attain proficiency in Grade 6 than the students who were not proficient in Grade 3. The probability of being proficient in Grade 6 in the three subject areas is around 90 percent and above. As a result I focused on the students who were not proficient in the Grade 3 assessments.

In examining the students who were not proficient in the Grade 3 assessments of Reading, it appears that, contrary to the stated hypothesis for country mobility, the students who moved to Canada were more likely to be proficient (predicted probabilities greater than 55 percent) in the Grade 6 assessment of Reading than the students who were born in Canada (predicted probability less than 47 percent). I also found that students who moved to Canada were also more likely than not (predicted probability greater than 50 percent) to be proficient in Grade 6 assessment of Reading.

Further, among immigrant students though the difference in years spent in Canada was significant only for Mathematics, the results were varied by language in Reading. For students who spoke English only, the results showed that those who lived less than 5 years in Canada (predicted

probability = 61 percent) were generally more likely to be proficient in Grade 6 Reading than immigrant students who lived in Canada for 5 years or more (predicted probability = 53 percent). Whereas for the students who spoke another language in addition to English there appeared to be little difference in the results between students who lived in Canada for less than 5 years (predicted probability = 57 percent) and those who lived in Canada for 5 years or more (predicted probability = 55 percent).

For Reading generally, students who were born in Canada and who spoke another language were more likely to be proficient (predicted probability = 46 percent) in Grade 6 assessments than their counterparts who were born in Canada and spoke English only (predicted probability = 42 percent). When time in Canada is taken into consideration students who lived in Canada for less than 5 years and who speak English only (predicted probability = 61 percent) are more likely to be proficient in reading than students who lived in Canada for less than 5 years and who speak another language in addition to English (predicted probability = 55 percent).

The results found in Reading were consistent with those in Writing. Students born outside of Canada (predicted probability greater than 57 percent) appear more likely to be proficient in Writing than students who were born in Canada regardless of language spoken (predicted probability less than 50 percent). Also, the students who moved to Canada also had a greater predicted probability of being proficient than not proficient in Grade 6 assessment of Writing.

Further, the results showed that regardless of language spoken, students who lived less than 5 years in Canada (predicted probability greater than 59 percent) were generally more likely to be proficient in Grade 6 Writing than immigrant students who lived in Canada for 5 years or more (predicted probability less than 53 percent).

For Writing, generally, students who were born in Canada and who spoke another language (predicted probability = 49 percent) had greater likelihoods and predicted probabilities of being proficient in Grade 6 assessments than their counterparts who were born in Canada and spoke English only (predicted probability = 44 percent).

Among the students who were not proficient in Grade 3 Mathematics, students who moved to Canada generally were more likely to be proficient (predicted probability greater than 48 percent) in Grade 6 than students who were born in Canada (predicted probability less than 37 percent), regardless of the other language spoken. Students who spoke another language at home regardless of country mobility also had a greater probability of being proficient Grade 6 Mathematics than their counterparts who spoke English only.

In addition, the number of years spent in Canada was significant for mathematics. Students who were not proficient in the Grade 3 assessment of Mathematics and who were in Canada for less than 5 years regardless of language spoken were more likely to be proficient in Grade 6 assessment of Mathematics than the immigrant students who lived in Canada for 5 years or more.

The results for the analysis also show that there is a consistent gender gap in immigrant achievement across the three subjects regardless of language spoken at home. Female students with proficiency in Grade 3 Reading have a greater of being proficient in Grade 6 assessment than male students who were proficient in the Grade 3 assessment of Reading. The predicted probabilities for female students range from 88 percent to 95 percent; the predicted probabilities for male students range from 64 percent to 92 percent. The results are similar for writing. In Mathematics there is little difference in the predicted probabilities of the two groups of students.

Discussion

The focus of this study is on whether students achieved proficiency in Grade 6 if they were not proficient in Grade 3 assessments of Reading, Writing and Mathematics. The study analysed the effects of the interaction of country change and speaking English and or another language at home on the students' change in performance from the Grade 3 assessment to the Grade 6 assessment. The results were presented as a comparison between students who were born in Canada, and spoke English at home versus students who moved to Canada, and spoke another language only or in addition to English at home. The study further looked at the time spent in Canada for students who moved to Canada. While Gender was a variable present in the analysis, this paper does not report on the effect of gender.

Overall, as expected, the results in assessments of Reading, Writing, and Mathematics indicate Grade 3 proficiency is the strongest predictor of students' performance in Grade 6. If students are proficient in Grade 3 then their proficiency is likely to be maintained in Grade 6. Since it is well established in the literature that prior year proficiency is a very strong predictor of student proficiency, further discussion of those students is unnecessary. This paper concentrates on students who were not proficient in the Grade 3 assessments.

The interactions of the Grade 3 results and some combinations of language difference, and country change were statistically significant, suggesting that the factors had different effects for students who had achieved proficiency in Grade 3 and for those who had not. Whether English was the only language spoken at home also had significant interactions with other factors. When we individually examine the effects of Country Change, or Home Language in all subject areas tested, we see that students born outside of Canada (i.e., immigrants) are more likely to be proficient on Ontario's large-scale assessment in Grade 6 than Canadian-born students particularly if they spoke a language other than, or in addition to, English. Generally, students who had moved to Canada and were not shown to be proficient in Grade 3 were more likely (than not) to have gained proficiency in Grade 6. In Writing, the results show that there was a probability of more than 50 percent that all the students who had moved to Canada and were not shown to be proficient in Grade 3 would be proficient in Grade 6. For Mathematics, there was a slight drop below 50 percent; the probability of becoming proficient in Grade 6 fell to 49 percent for those students who spoke English only.

Worswick's (2004) did conclude that immigrant students can catch up and apparently that holds true generally for the immigrant students in this study. The fact is, these immigrant students under study were tested not proficient in Grade 3 and the findings provide some support for Bourdieu's (1984) theory that immigrant students do not possess the cultural capital required for academic success. However the results of this study do indicate that something must have happened between Grade 3 and Grade 6 to foster their proficiency in Grade 6. These data do not allow us to make causal claims; however we do know from the OECD (2006) report that Canada was one of the few countries where high school (my study looks at elementary students) immigrant students had similar or better performance than non-immigrant students. We also know from the literature (Krahn & Taylor, 2005) that immigrant parents in Canada have high aspirations regarding postsecondary education for their children and that the OECD (2006) also found that immigrants had very positive attitudes towards education. Why these probable associations did not manifest in Grade 3 proficiency for these students again cannot be explained by this study but do pose interesting questions about assimilation and other acculturation processes by family, school, and community.

This study also has important implications for research on immigration and the sociology of education. According to Bourdieu's framework, the students who immigrated to Canada and those who spoke a home language other than or in addition to English should have encountered obstacles in their learning from the delivery and content of the curriculum and the school environment

stemming from power differentials and perceptions of cultural and social inferiority. These indicators of the measures of achievement should have pointed to less successful results for students who had moved from another country and spoke another language.

However, the results of this study appear to question the results that the framework might lead us to expect. These results might lead to a conundrum. Do the students achieve success in spite of the obstacles they encountered as addressed by the study's theoretical framework and if so, what factors enabled their success? Or on the other hand do we need to consider future research into the development of other theories that might better address the situation of today's immigrants? Can we generalise these findings to other jurisdictions in Canada outside Ontario?

Perhaps some of the difficulty of relating the study's results to the expectations of the study's theoretical framework could have been mitigated if it were not for the limitations of the data, which do not permit the disaggregation of the students born outside of Canada into identified immigrant groups. The disaggregation of the students born outside of Canada would possibly have told us more about the variations in achievement within the immigrant student population.

The study continues the conversation in sociology of education about the need for new ways of conducting research into the education of immigrant youth in Canada. This study highlights the lack of focussed empirical research on the academic performance of immigrant youth in elementary and secondary schools in Canada, including research tracking student academic trajectories across schools, and research that focuses on the strength and resilience of these youth and not just on their marginalisation and challenges.

The results of this study pose several interesting questions for policy-makers particularly in the area of the evaluation of programming strategies. It is important to identify the strategies that are supporting positive achievement for immigrant students and those speaking a language other than the language of instruction. In addition, notwithstanding the positive outcomes of this study, we still have to consider if the policy of using standardised assessments is the most appropriate method for evaluating students' performance. If large-scale assessments are to be used, it might be beneficial to include pertinent background data (now lacking) that would allow a more in-depth analysis of students' performance. Demographic data can provide valuable information on academic performances; however, the reason or reasons for collecting and using these data must be properly communicated to the public, teachers, students and all other stakeholders. The pertinent, useful information that can potentially be gained from large-scale assessments in combination with other data can lead to more effective allocation of resources both in the classroom and at the school administration level. This might ultimately lead to improved learning outcomes for all students.

Conclusion

In this study, I have focused on students who were born in another country. However further research could explore the similarities and differences in the academic achievement between children born after their parents immigrated and those born to the same parents before they immigrated, especially if the move occurred when the child was very young. In addition, using country change as an aggregate immigrant group masks the variations in achievement that might be found among students from different countries or different social environments. There is a need for research in Canada that would further disaggregate the students and identify the variables that are correlated with academic success.

The study highlights the need for policy-makers and test-developers to re-examine the nature and comprehensiveness of the demographic and other data that are being collected in standardised testing and the implications for its use. This study examined the academic performance of a cohort

of students on a standardised test at two points in time (Grades 3 and 6). A fuller investigation of student development, (not possible due to limitations of background and other data collected), would have included aspects of development in addition to academic performance as well as other factors impacting on the students' school experience, such as school climate and teachers' expectations.

Policy-makers should not take the positive results of this study regarding the education of immigrant students as a reason to reduce funding and programming for immigrant students and those with English as an additional language. Students who have experienced country mobility, language differences, and school mobility need an equal opportunity to learn with the appropriate resources that will address his or her individual needs.

Finally education in Canada is the responsibility of the provinces and each province has its own way of implementing its educational system. Immigration is the responsibility of the Federal government. Settlement patterns that might differ across the country have not been included in this study. In the light of the above, though Ontario is one of the largest receiving provinces of immigrants and the dataset used in the study is large (more than 121,000 students), it is still difficult to determine if the results of the study can be generalised across Canada.

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