MA MAJOR RESEARCH PAPER

Immigrant Children in Canadian Schools: Factors Affecting Academic Performance Including Social Integration

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The Major Research Paper is submitted
in partial fulfillment of the requirements for the degree of
Master of Arts

Graduate School of Public and International Affairs
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Ottawa, Ontario, Canada

17 August 2009

Acknowledgements

In part, this research paper is inspired by the refugee children I met at a transitional school in downtown Winnipeg in 2008 and my growing curiosity of the impact of Canada's education system on the future well-being of immigrant children like them. What helps immigrant children succeed and why are outcomes starkly different? Motivated to solidify my statistical analysis skills, I pursued the use of Statistics Canada's NLSCY. As a 1.5 generation immigrant who moved to Canada in 1993, the profile of the children in the first cycle of the NLSCY is similar to mine and my peers'. I wanted to know what happened to my compatriots, in order to share some lessons from our experiences to future generations.

This paper would not be possible without the countless help and support I received from Dr. Ravi Pendakur (GSPIA, University of Ottawa). Thank you for your countless encouragement and assistance in this magnanimous undertaking. I also would like to acknowledge the support I received from Dr. David Zussman (GSPIA, University of Ottawa). Your kind words of wisdom and strict eye for grammar and referencing were always welcomed and appreciated.

I am also indebted to the staff of Statistics Canada's Research Data Centre (RDC) for allowing me to access the NLSCY. Many thanks go to Jean-Michel Billette from the COOLRDC. Even in the short time, you have become a teacher to me. Thanks also go to Margaret Dechman, Heather Hobson and Dr. Victor Thiessen from the Atlantic RDC at Dalhousie University for welcoming me. I sincerely appreciate your patience.

Special thanks also go to the many people who helped along the way during my research. Thanks go to Fernando Mata (Multiculturalism/CIC) and Dr. Nina Ahmed (HRSDC) for your help in the earliest stages of this research. You are the experts in statistical modeling and the NLSCY respectively. Thanks to Samina Essajee (GSPIA, University of Ottawa) and Susan Perry Radstrom (New Journey Housing) for the conversations we had about immigrants and their children. Thank you to Mum & Dad Miners, Dr. Prachi Srivastava (MDG, University of Ottawa) and Catherine Gladwell (Trinity College, University of Oxford). Your respective work in the field of international development and education is truly inspiring to me. I also want to thank Val Micklefield and Grace Hagenlocher from the King's School Transitional School for Refugee Children in Winnipeg. Canada needs more educators like both of you. I would also like to extend my gratitude to Ginette Robitaille and France Proud'Homme (GSPIA, University of Ottawa) for their countless administrative support while I completed graduate school. I also want to thank my peers. To the first co-hort to graduate from GSPIA, thank you for the journey.

Lastly, I thank my family for allowing me to pursue my dreams. To my parents who sacrificed a lot to bring my sister and me to Canada, thank you. The adventure has been worth it and your sacrifices have paid off. To my sister who visited me in Ottawa during a tough semester, thank you. Most importantly, I thank my dear husband, Philip Miners. After countless of flights between Ottawa, Victoria and Halifax, you have helped me survive and conquer this endeavour with great joy.

Abstract

Alarmingly, previous studies found the academic performance of immigrant and first generation children in Western societies are inferior to the academic performance of their non-immigrant counterparts. Often, this finding has been used as a causal argument to the lower educational attainment, employment and material/financial outcomes of this demographic in their adult years. If this set of propositions were true, then Canada faces and will continue to face serious public policy challenges because this demographic constitutes approximately 20% of all children in Canada.

To explore this public policy scenario, this study aims to verify if children in Canada experiences this academic gap using OLS regression models from the first three cycles of Statistics Canada's* National Longitudinal Survey of Children and Youth (NLSCY). Contrary to other studies, the results show that all children in Canadian schools perform at similar academic levels. Some evidence was found, though limited, about the declining academic aptitude of immigrant children after attending and integrating in Canadian schools which suggests an opposite outcome to the predominant arguments and results found in existing literature. The paper also argues and finds that for the most part, academic difference are driven by the students' linguistic skills, their ability to get along with others, and participation in social activities, as well as their parents' attitudes towards education, and their family's socio-economic status (SES) rather than the students' country of birth or immigrant status.

*While the research and analysis are based on data from Statistics Canada, the opinions expressed do not represent the views of Statistics Canada.

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Immigrant Children in Canadian Schools: Factors Affecting Academic Performance

1.0 Introduction

Every year, over 200,000 to 250,000 immigrants from all over the world, arrive in Canada to make it their new home. Annually, approximately a third of this group is immigrant children and youth. At this rate, the Canadian Council of Social Development (CCSD) projects that by the year 2016, 25% of all children in Canada would be immigrant children (CCSD, 2006). These figures confirm that immigrant children and youth are substantial demographics in Canadian society today and in the future. Their successes or failures, therefore, have significant impacts on Canada's current and future social and economic outcomes (CCSD, 2006).

Most, if not all, immigrant children and youth are enrolled in Canadian schools shortly after their arrival to Canada. As a result of their presence and interactions in the classroom, mutual changes occur in both the students and the school system. Immigrant children and youth adjust and adapt to Canada's education system. Simultaneously, the Canadian education system also changes as it responds to the needs that are unique to this group of students.

Previous studies in and outside of Canada found and argued that immigrant and first generation children (or children of immigrants) are academically disadvantaged compared to non-immigrant students (Thiessen, 2009; Worswick, 2001; OECD, 2006; Willms, 2003; Li, 2007; Abada, Hou & Ram, 2008; Reitz & Banerjee, 2006; Entzinger & Biezeveld, 2003; Kaprielian-Churchill & Churchill, 1994; Rumbaut, 2000; Schnepf, 2008; Ricucci, 2008; Sweetman, 1998). If this was the case, this phenomenon poses a significant problem to Canadian educators and policymakers. However, some other studies found that the educational experiences of immigrant children are better in Canada than other OECD countries like those in

Europe (Entzinger & Biezeveld, 2003; Schnepf, 2008; Ricucci, 2008). More specifically, the Organisation for Economic Co-operation and Development (OECD) found that the difference in academic performance of immigrant and non-immigrant children in countries like Canada are not significant because of the existence and implementation of social integration policies to ensure the inclusion of new immigrants into mainstream society (OECD, 2006). Another study found that immigrant children actually outperform non-immigrant children in Mathematics while they slightly fall short in Language and Science courses (Ma, 2003). Worswick (2001) also found that the academic performance of first generation and non-immigrant children in Canada converges over time.

In light of these differing findings, this quantitative study aims to verify if there is an academic difference between immigrant, first generation and non-immigrant children in Canadian schools. In order to do so, the study will conduct a multivariate OLS regression analysis using the first three cycles of the National Longitudinal Survey of Children and Youth (NLSCY).

This study will also test the underlying hypothesis that integration has a positive impact on children's academic performance by examining how certain factors such as personal characteristics, and familial and social capital attributes affect the academic performance of children in the NLSCY sample (Worswick, 2001; Kaprielian-Churchill & Churchill, 1994; Takanishi, 2004; Hanvey, n.d.; CCSD, 2006). The concept of integration is used because of the academic convergence that occurs over time which was found in Worswick's (2001) and Sweetman's (1998) studies. Several other authors have also argued that the integration of immigrant students is necessary to achieve better in school due to the time that elapses to allow

the students to adjust to the learning style and social environment in their respective school communities (Willms, 2003; Worswick, 2001; Kaprielian-Churchill & Churchill, 1994). The OECD (2006) report also supports the importance of integrative policies, especially regarding the linguistic integration of new immigrants, and their positive impact on the academic performance of immigrant students.

To summarize, therefore, the questions of this analysis are as follows:

(1) What is the difference in the academic performance of immigrant, first generation and non-immigrant children in Canada?
(2) Does integration have a positive impact on the academic performance of immigrant and first generation children, as measured by the impact of personal, familial and social capital attributes of students on their academic performance?

The results from the regression analyses suggest that there is no significant difference in the academic performance of immigrant and non-immigrant children in Canadian schools. In fact, some mean scores suggest that immigrant children outperform their non-immigrant counterparts. However, the study also reveals that for the most part, first generation children actually outperform non-immigrant children contrary to what Worswick found in his study in 2001.

As for the positive impact of integration vis-à-vis the students' personal, familial and social capital attributes, the results are different in each cycle suggesting that further study is needed before overarching conclusions can be made. However, some trends can be extracted from all three cycles. For example, the students' socio-economic status (SES), and their parents'

attitudes towards education have positive impacts on academic performance. These results suggest that policies targeted towards the family will have a positive impact on children's educational outcomes. The immigrant student's linguistic abilities to speak either French or English, and his or her social capital also have positive influences on his or her academic performance.

The student's place of birth, or his or her immigrant status have variable impacts on academic performance. On the one hand, immigrant children outperform non-immigrant students in Canadian schools. However, this advantage diminishes over time. The results of this study show that immigrant children who have lived in Canada for five years or longer receive lower math scores when compared to their non-immigrant counterparts. Contrary to the original hypothesis of the study that integration has a positive impact on academic performance, this finding suggests that it may have a negative impact on the academic performance of immigrant children.

2.0 Background

2.1 Immigrant children in Canada

Canada is a country of immigrants, with an average in-take of approximately 200,000 to 250,000 newcomers annually (See Table 1) (Cardozo & Pendakur, 2007; Canadian Education Statistics Council (CESC), 2006; Hauck, 2001). Immigrant children from infants to 14 years of age account for approximately 21.4% of newcomers each year (see Table 2). If youth and young adults between the ages of 15 and 24 are included, the proportion of young immigrants increases to about 37.5% annually.

There are many competing definitions of immigrant generation status (Statistics Canada, 2008-2; HRSDC, 2008; Ricucci, 2008; Portes & MacLeod, 1996). This study defines immigrant children as individuals who are born outside of Canada from non-Canadian parents. (This group includes children who may have naturalized since migrating to Canada.) First generation children is define as those born in Canada, and are therefore Canadians at birth, with one or two immigrant parents born outside of Canada from non-Canadian parents.

Research about immigrant children has been limited (Crowe, 2006; Beiser et al., 2005; Takanishi, 2004; Li, 2007; Zhou, 1997). The primary focus of academic and policy research has been on adult immigrants and more specifically, on their economic integration in Canada through building their human capital (Bonikowska, Green & Riddell, 2008; Crowe, 2006; Entzinger & Biezeveld, 2003; Hauck, 2001; Kilbride, 2000; Krahn, Derwing, Mulder & Wilkinson, 2000; Li, 2007; Mata & Pendakur, 1999; Palameta, 2007; Zhou, 1997). The underlying assumption in current literature suggests that the successful economic integration of immigrants in their new communities will automatically yield benefits that will "trickle down from (the) parents to the children" (Crowe, 2006, p. 8). Some other studies have focused on immigrant youth and their pursuit of post-secondary education (Thiessen, 2009; Abada, Hou & Ram, 2008; Palameta, 2007; Statistics Canada, 2001). Similarly, the focus of these studies has been on the youth's future economic integration vis-à-vis their educational attainments (Crowe, 2006; Statistics Canada, 2001; Entzinger & Biezeveld, 2003; Statistics Canada, 2001).

There is a growing body of literature that examines the experiences of immigrant children and youth in their earlier years. Studies have found that this stage of life has significant impact on their life outcomes as adults (see: Crowe, 2006; Takanishi, 2004; Reitz & Banerjee, 2006;

Kaprielian-Churchill & Churchill, 1994). In particular, some studies have focused on their interactions and experiences in schools. One study argues that "(e)ducation is one of the most important community resources for children and youth" because schools have the potential to provide for the cognitive, social and emotional development of children (CCSD, 2006, p. 32). This study subscribes to this argument and has therefore, focused on how different factors affect academic performance.

3.0 Literature Review

3.1 Previous studies

Some studies have found that immigrant student populations are outperformed academically by their non-immigrant counterparts (see: OECD 2006; Worswick, 2001; Willms 2003; Ricucci, 2008; Li, 2007; Kaprielian-Churchill & Churchill, 1994). Other studies expanded their scope of inquiry by including first generation immigrants although these studies also found the same academic disadvantages experienced by immigrant and first generation students (Bonikowska, Green & Riddell, 2008; Thiessen, 2009; Entzinger & Biezeveld, 2003; Abada, Hou & Ram, 2008; Reitz & Banerjee, 2006).

In Europe, for example, a 2006 OECD report found that immigrant children from Austria, Belgium, Denmark, France, Germany, the Netherlands and Switzerland underachieve in standardized test results when compared to non-immigrant students. Ricucci (2008) argue that this academic gap is prominent in Western European countries with immigrant students from Eastern and Central Europe, and from outside of the European continent. Other manifestations of academic disadvantages experienced by the immigrant student population include higher

dropout and repetition rates, and lower transition rates to higher levels of education like post-secondary education (Crul & Vermeulen, 2003; Entzinger & Biezeveld, 2003; Ricucci, 2008).

With this European background, do immigrant and first generation children in Canada also experience the same academic disadvantages? Worswick (2001) conducted a study on the academic performance of first generation children in Canadian schools and compared their results to non-immigrant students. His study found no significant difference in the Reading exam, and first generation students actually outscore non-immigrant children in the Mathematics exam. However, when Worswick disaggregated the results of first generation children based on their linguistic characteristics, he concluded that first generation children with immigrant parents whose mother tongue is neither French nor English were at an academic disadvantage compared to other first generation children and non-immigrant children. However, he also found that academic results eventually converge for all students by the age of 14 (Worswick, 2001). This academic convergence underpins this study's hypothesis that social integration vis-à-vis elapsed time has a positive impact on the academic performance of immigrant students (also see: Sweetman, 1998).

In another study, Ma (2003) found that immigrant students outscore their non-immigrant counterparts in Mathematics but are at a slight disadvantage in Reading and Science. Ma (2003) used data from the OECD's Programme for International Student Assessment (PISA) standardized exams. PISA is a particularly relevant and useful dataset to this study because it collects and compares academic scores of 15 year olds from standardized exams in Mathematics, Reading, Science, and Problem Solving (OECD, n.d.d). The OECD, through PISA, also gathers information about the students' personal background, and their experiences within the school

environment including their social interactions with others. All of this information is used to analyze how well children are performing academically, as well as identifying the factors that affect their academic success or failure (Ibid.). The motivation behind this OECD study is to assess and compare the educational development of students around the world, and the quality of their respective educational systems.

With 43 other countries, Canada has participated in PISA since its inaugurating year in 2000 (OECD, n.d.e). In 2003, 41 countries joined while 57 participated in 2006 (Ibid.). As for the 2009 test administration year, 62 countries are currently registered to participate (Ibid.). Consistently, Canadian students have fared quite well when compared to other countries. As shown in Tables 3.1, 3.2 and 3.3, the mean scores for non-immigrant and immigrant students in Canada are higher than their counter-parts in other OECD countries in Reading, Math and Science exams. Looking only at the scores of children in Canada, immigrants are at a slight academic disadvantage compared to non-immigrant students. However, the OECD argues that this performance gap is inconsequential (OECD, 2006). An earlier Canadian study conducted by Dinovitzer, Hagan, and Parker (2003) confirmed the OECD results by also discovering that there is no significant difference in the educational achievements of immigrant and non-immigrant students in Canadian schools.

Other quantitative studies conducted in Canada expand their analysis by disaggregating the ethnocultural backgrounds of immigrant students. This approach is premised on findings that students from various ethnic backgrounds achieve differently academically (see for example: Abada, Hou & Ram, 2008; Thiessen, 2009; Kaprielian-Churchill & Churchill, 1994; Samuel, Krugly-Smolska & Warren, 2001). For example, some studies found that students with West

Indian and Caribbean backgrounds academically perform the least when compared to other immigrant children in Canadian schools (Reitz & Banerjee, 2006; Samuel, Krugly-Smolska & Warren, 2001). Thiessen (2009) did not identify West Indian and Caribbean children in his study but instead found that students of African and Latin American backgrounds fared lower than other immigrant and non-immigrant students. Contrary to these negative results, studies have also found that immigrant children from China and South Asia outperform not only other immigrant students but also their non-immigrant counterparts (Thiessen, 2009; Ma, 2003; Zhang, Ollila & Harvey, 1998; Krugly-Smolska & Warren, 2001). Another indicator of academic success is the pursuit of post-secondary education. Previous studies have also found that youth from Chinese and South Asian descent are more likely to enroll in university than any other group of students, including their non-immigrant counterparts (Abada, Hou & Ram, 2008; Dinovitzer, Hagan & Parker, 2003; Thiessen, 2009).

3.2 Factors that influence academic performance

Aside from identifying the academic gap between non-immigrant and immigrant students, studies have also explored the factors that may cause and reduce these inequities. Some studies have concluded that a combination of factors is necessary to explain the differences in academic achievement, as well as the integration of students in their school environment (Thiessen, 2009; Schneider & Lee, 1990; Peng & Wright, 1994; OECD, n.d.d). Consequently, some studies argue that students who are unable to adjust and integrate in Canadian schools are found to achieve lower academic scores (Worswick, 2001; OECD, 2006; Ricucci, 2008; Crowe, 2006; Thiessen, 2009; Li, 2007; Kaprielian-Churchill & Churchill, 1994; Takanishi, 2004; Hanvey, n.d.; CCSD, 2006; Portes and MacLeod, 1996). However, immigrant students who are

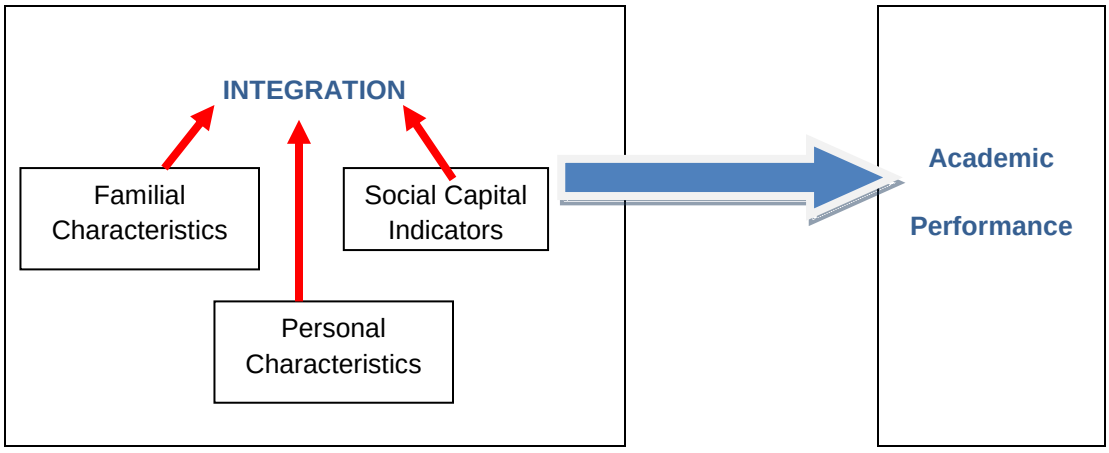
able to integrate have the opportunity to do as well as their non-immigrant counterparts, and may even outperform them academically (Ibid.).

As a result of these findings, this study will test the argument that integration has a positive impact on children's academic performance. The factors that arguably influence integration which in turn also influence academic achievements include:

- Personal attributes like ethnocultural background and linguistic characteristics (Thiessen, 2009; Crowe, 2006; Kaprielian-Churchill & Churchill, 1994; Li, 2007; Worswick, 2001; OECD, 2006; Sweetman, 1998);
- Familial characteristics like the household's socio-economic status and parental attitudes (Thiessen, 2009; Portes and MacLeod, 1996); and
- Social capital indicators such as the student's ability to get along with others and participation in extracurricular activities (Thiessen, 2009; Li, 2007; Ricucci, 2008; Portes and MacLeod, 1996; Coleman, 1988).

As a result, the conceptual model of this study can be drawn as follows:

Figure 1: Conceptual Model Diagram



3.2.1 Time factors

Time factors like the age of the child during the survey, the age of the child during immigration, and the number of years that have elapsed since migrating to Canada have an impact on the academic performance of immigrant and first generation students. Sweetman (1998) and Worswick (2001) found that the impact of immigrant status on academic performance significantly diminishes as the children ages. As for age at immigration, and the number of years since immigration, some studies show that test scores improve as children adjust and integrate into their new environments (Kaprielian-Churchill & Churchill, 1994; Crowe, 2006). Arguably, time allows for a natural acclimatization to occur for immigrant students to learn, understand and adapt to the rules, norms and teaching styles found in Canadian classrooms.

3.2.2 Ethnocultural characteristics

Zhang, Ollila and Harvey (1998) argue that "cultural background is an essential aspect of personal identity that interacts with the education one receives in a certain society" (p. 182). As for immigrant students, their cultural identities are often nurtured and sustained by their parents' expectations. Therefore, examining parents' attitudes toward education is one of the best manifestations of cultural influences in the family. Zhang, Ollila and Harvey (1998) found that immigrant parents transmit different messages to their children regarding educational expectations because of different cultural values, and past experiences in their home countries. Studies found that immigrant parents experienced more competitive and strict schooling when compared to the Canadian pedagogy. Immigrant parents also often regard educational attainments and successes as a way to compensate for being an immigrant, in order to be

competitive in the Canadian labour market (Ibid.). Therefore, the message that immigrant parents transmit to their children includes an element of academic pressure to succeed.

So how do parental expectations affect children's academic performance? Thiessen (2009) argues that parents' expectations influence children's educational aspirations, motivations, and the actual academic efforts exerted by their children. Similarly, Glick and White (2004) found that immigrant parents have high educational aspirations for their children to attend university. If these expectations actually translate to effort in schoolwork, as they often do in immigrant households because of the emphasis on hard work, family honour and respect for elders, then high academic achievements are also expected to occur (Glick & White, 2004; Zhang, Ollila and Harvey, 1998). Studies have shown that this is often the case in immigrant families with Asian backgrounds (Thiessen, 2009; Rumbaut, 1997; Peng & Wright, 1994). For example, Rumbaut (1997) found that Asian American children were able to achieve higher school marks not necessarily because they are smarter by nature than other students, but because of the extra effort exerted by this group of students. Likewise, Peng and Wright (1994) conducted a study of children from Asian American families and found that parents' high expectations are the strongest predictors of students' academic achievements. Once again, parental expectations translated to actual efforts exerted by this group of students. Similarly, a Canadian study found that high-achieving immigrant students from East Asian families "report higher parental expectation… concerning academic achievement" (Thiessen, 2009, p. 8).

Language is another ethnocultural dimension that has significant impact on the academic performance of immigrant and first generation children because the ability to communicate and comprehend in the language used in the classroom is critical to academic performance (Kaprielian-Churchill & Churchill, 1994; Crowe, 2006). Recent immigration trends in Canada

show that over 75% of all immigrants who arrived between 2001 and 2006 are from countries that do not have English or French as their mother tongue (Statistics Canada, 2008b). An earlier research found that a growing number of children in North American households use a different language at home than the language of instruction used in schools which implies that vocabulary development in the host country's language may be limited in the home (Sweetman, 1998). This scenario makes it possible that not only immigrant children encounter language difficulties at school but also first generation children who may start primary school without sufficient language skills in English or French.

Studies have found that immigrant children who do not speak English or French are at a significant academic disadvantage (Sweetman, 1998; Thiessen, 2009; Worswick, 2001; Li, 2007; Willms, 2003). One specific Canadian study found that first generation children whose parents do not speak French or English performed worse in Reading and Writing exams administered by the NLSCY when compared to other first generation and non-immigrant children (Worswick, 2001). Using PISA results, however, the OECD (2006) found that immigrant-receiving nations like Canada, Australia and New Zealand do not experience significant academic disparities between their immigrant and non-immigrant student because of language training policies extended to their immigrant communities (also see: Hauck, 2001; Kaprielian-Churchill & Churchill, 1994; Crowe, 2006).

3.2.3 Socio-economic status (SES)

Socio-economic status (SES) which is a combination of household income, parents' level of education, and parents' occupational prestige in the NLSCY (Statistics Canada, n.d.a) is argued to be "[o]ne of the most powerful predictors of educational attainment" (Portes & MacLeod, 1996, p. 256). Studies found that inferior academic outcomes can be attributed to

socio-economic disadvantages like the lack of economic resources or having parents with lower levels of educational attainments (Thiessen, 2009; Abada, Hou & Ram, 2008; Zhou, 1997; Portes & MacLeod, 1996). In one American study, Portes and MacLeod (1996) found that students from poorer families and school districts had inferior academic achievements (also see: Rumbaut, 1997). In a Canadian study, Abada, Hou and Ram (2008) found that household SES has significant impact on children's educational outcomes especially in explaining dropout rates and the pursuit of post-secondary education. Thiessen (2009) found that an increase in family resources will allow higher post-secondary enrolment rates for immigrant students from Asian families in Canada.

Aside from economic resources, some authors like Li (2007) argue that parents' educational levels have a greater impact than the availability of financial resources. In his study, Li compared the learning pathways of immigrant children in Chinese families in Canada. He found that economic resources that are not deliberately used toward the cognitive developments of children have no real impact on children's academic performance. Base on his findings, he argued that parents with higher levels of education, regardless of their economic circumstances, are more able and willing to invest in the learning and cognitive development of their children. Li's study found that more educated parents were able to tap into free educational resources in public schools and libraries, were more actively involved in their children's learning at home and at school, and exposed their children to a more diverse and academic social community (also see: Zhang, Ollila & Harvey, 1998).

3.2.4 Social capital indicators

Social capital refers to the social networks, social support and levels of trust, and social engagement of an individual (Morrow 1999; Coleman 1988; Putnam 2007; Sheldon, 2007). Studies have attempted to measure how social capital impacts children's academic outcomes but yielded mix reviews (Coleman, 1988; Sheldon, 2007; Portes & MacLeod, 1996). Sheldon (2007) argue that parents' social capital has an impact on their children's academic outcomes because social networks influence child rearing practices like how much time and resources parents invest on their children's learning (Sheldon, 2007; Coleman, 1988). Although Li (2007) argued that parents' involvement in the cognitive development of their children is attributed to the level of education parents have, Li also acknowledged that the availability of social capital resources (i.e., parents' social networks and supports) have a positive impact on children's language acquisition and overall academic performance. This echoes Coleman's (1988) findings that parents' social ties can create the social context for academic excellence by creating achievement norms and resource-sharing for academic advancement. These findings were evident in an interview I had with a first generation Canadian from Toronto about the ethno-religious practices in her parents' Islamic community (S. Essajee, personal communication, July 14, 2009). The social network from which she is a part makes interest-free student loans available to their members and their members' children as an important tenet of their religious lifestyle (also see: Kuran, 1986). There is also an apparent and to an extent, an expected norm from the youth in this community to pursue educational success as measured by the receipt of professional degrees (i.e., law, medicine, engineering) (S. Essajee, personal communication, July 14, 2009).

However, aside from the impact of parents' social capital, other academics also argue that the social capital of children themselves has an impact on how well children do in school (Morrow 1999; Coleman 1988; Kilbride, 2000; Reitz & Banerjee, 2006; Taggart & Kao, 2003; Gillock & Reyes, 1999; Sheldon, 2007). However limited, children still have social agency to develop their own social capital by engaging and interacting with others in and outside of their school environments (Morrow, 1996 1999; Hanvey, n.d.; Li, 2007; Sheldon, 2007). How well children get along with others, the peer groups they develop, and the social activities they participate in are some of the social capital indicators for children.

Peer groups have a great influence on children's academic success, their social engagement, and educational aspirations (Gillock & Reyes, 1999; Ogbu & Simmons, 1998; Coleman, 1988; Pong & Hao, 2005). Often, children join social activities en masse, and school efforts are determined by acceptable norms established within their social networks (Ibid.). Therefore, the type of peer groups students can be associated with can either have a positive or negative impact on their academic performance base on the peer pressure they experience from these networks. Some peer pressure is positive because they encourage academic success through working hard and pursuing higher levels of education (Pong & Hao, 2005; Glick & White, 2004; Rumbaut, 1997; S. Essajee, personal communication, July 14, 2009). However, for the most part, peer pressure carries a negative connotation suggesting its detrimental effect on children's school experiences. Ogbu and Simmons (1998) found that some immigrant children experience non-conformist peer pressure from co-ethnics which in turn prevents their integration and success in the school environment. Social networks formed in impoverished neighbourhoods also create undesirable peer pressure resulting in negative influences in immigrant children's academic experiences and outcomes (Gillock & Reyes, 1999).

4.0 Statistical Analysis

4.1 The National Longitudinal Survey of Children and Youth Overview (NLSCY)

To conduct the statistical analysis portion of this study, Cycles 1, 2 and 3 of the National Longitudinal Survey of Children and Youth (NLSCY) dataset were used. The NLSCY was created by Statistics Canada and Human Resources Development Canada (HRDC) under the *"Brighter Futures"* initiative as part of the *"What Works for Children – Information Development Program"* (Statistics Canada, 1995b). The children included in the survey were derived from Statistics Canada's Labour Force Survey (LFS) which is representative of the Canadian population (Statistics Canada, 1995b). Since the LFS only included the ten provinces, the NLSCY introduced the Territories Component to include children from these northern communities (Statistics Canada, n.d.a). The NLSCY contains valuable and comprehensive information about children in Canada including their:

- Personal background (i.e., age; country of birth/ethnicity; health; temperament and behavior; education and literacy; social relationships and interactions);
- Family background (i.e., personal characteristics of the parents including their country of birth/ethnicity, health, educational background, employment, income; language used in the home; their religion (if any); family structures and social support including child care); and
- The characteristics of their neighbourhoods (Statistics Canada, 1995a).

The NLSCY also includes standardized assessment examinations. The Peabody Picture and Vocabulary Test (PPVT) was administered to test the vocabulary of children in kindergarten

and grade one while a Math exam was given to children in grades 2 and higher (Statistics Canada, n.d.a). This study used the scores from the Math exams as it captured more children in the first three cycles. (Note, however, that the Reading test component was not used in this study because it was not introduced until Cycle 2.)

Data in Cycle 1 was gathered in 1994 and 1995. Cycle 1 has a total sample of N = 22,831 from newborns to 11 year olds, from approximately 13,439 households (Statistics Canada, 1995b; Statistics Canada, n.d.a). Data collection for Cycle 2 was conducted in 1996 and 1997 where the total cross-sectional sample of N = 20,025 includes children from newborns to 13 year olds from 13,248 households (Statistics Canada, n.d.b). Lastly, data collection for Cycle 3 was conducted between 1998 and 1999 and with a total sample of N = 38,035 that includes children from newborns to 16 year olds.

Aside from the inability to use scores from the Reading exam, two other limitations are found within the NLSCY for this particular study. First, we are unable to identify immigrant children who arrived in Canada as convention refugees or asylum-seekers. This is an important distinction because of the significant differences in the academic and developmental needs of students from these circumstances in Canadian schools (Miners, Winnipeg field visit, June 2008; also see: Crowe, 2006; Kaprielian-Churchill & Churchill, 1994; Gibson & Ogbu, 1991). Most refugee children require more assistance than other voluntary immigrants because of the difficult circumstances they've experienced and escaped from in their countries of origin (Ibid.). In fact, it is not unusual that they come from war-torn countries where educational systems have been disrupted or simply unavailable (P. Srivastava, class lecture, November 3rd, 2008). Their needs go beyond learning Canada's official languages but these students may also be illiterate as a

result of not having any prior exposure to education (Ibid.). However, due to the limitations of the data available in the NLSCY, the focus of this study will be on permanent resident immigrant children because there is no way to differentiate between voluntary and refugee students in the given dataset (also see: Beiser, Armstrong, Ogilvie, Oxman-Martinez & Rummens, 2005).

Some studies have specifically focused on the challenges of visible minority students in Canadian schools as they face unique challenges that are based on the colour of their skin or their ethnic background rather than their place of birth (S. P. Radstrom, personal communication, July 22, 2009; also see: Thiessen, 2009; Reitz & Banerjee, 2006). However, the second limitation of the NLSCY is its limited ability to identify which students are members of a visible minority groups (Statistics Canada, n.d.a). More specifically, the NLSCY only included Chinese, South Asian, Black, Métis, Inuit and Aboriginal communities to identify ethnic and cultural groups in their data collection (Ibid.). Since these categories are unable to capture the ethnocultural diversity of Canada's visible minority groups, this study limited its analysis on immigrant generation status based on the children's and parents' country of birth.

However, despite its many limitations in dealing with immigrant children in Canada (see: Beiser et al., 2005), the development of the NLSCY marked the beginning of more in-depth quantitative analysis about the plight of children in Canada. The federal government acknowledged that one of the purposes of this longitudinal study is to "fill an existing information gap regarding the characteristics and experiences of Canadian children" (Statistics Canada & Human Resources Development Canada, 1995, p. 4).

4.2 Data & Methodology

4.2.1 Overview

The aims of this study are to compare the academic performance of immigrant, first generation and non-immigrant students, and to examine the impact of personal, familial and social capital factors on their academic performance. The study also aims to verify the hypothesis that social integration has a positive impact on the academic performance of immigrant students, using the same factors that influence academic performance. In order to accomplish these goals, multivariate Ordinary Least Squares (OLS) regression analyses were used to create six regression models. Two separate models were created from Cycles 1, 2 and 3 of the NLSCY using two different dependent variables (see section 4.2.2).

To read the results of this analysis, cross-sectional weights and the test for significance of coefficient results (i.e., *p*-values) are necessary concepts to understand. Access to the NLSCY's primary file is restricted by Statistics Canada to protect the identity of the children and households included in this longitudinal survey. Approved research, however, can access these data sets with the condition that data and results are externally reported using pre-calculated weights. As a result, this study reports all of its findings using cross-sectional weights for each cycle. These cross-sectional weights, s oppose to longitudinal weights, give a static view at the particular time that the data for the cycle was taken. The NLSCY is also a probability sample which means that each individual in the survey represents other persons in the population not included in the sample. Also, the unavailability of cross-sectional weights after Cycle 3 prohibited this study from using more recent cycles of the NLSCY.

The probability value (*p-value*) of the *F-test* for significance is another important concept for understanding the coefficient results of the regression models. To determine if coefficient values are statistically significant which means that they are not a product of a random distribution, the *p-value* for each coefficient must be less than or equal to 0.1000 ($p \leq 0.1000$). Coefficients that are statistically significant can be expected to be statistically true and therefore, can be used to draw conclusions from regarding the results of the model.

4.2.2 Dependent variables

The first set of regression models found in Group A has a qualitative dependent variable that measures the overall academic performance of children from their parents' (subjective) assessments. The respondent in this case is called the **Person Most Knowledgeable** (PMK) about the child which is the mother of the child in 90% of the cases (Statistics Canada, n.d.a). The question asked PMKs to gauge the overall academic performance of their child based on their recollection of school marks from previous report cards, and their overall impression of how their child is faring academically (Statistics Canada, 1995a).

To improve on the limitations of the dependent variable used in Group A, the second set of regression models found in Group B used a quantitative dependent variable that indicates the actual scores children received from a standardized Math exam. Children received Math tests that were level-appropriate to their grade levels and were only administered with parental permission (Statistics Canada, n.d.a). Although scaled Math scores were calculated by Statistics Canada, this study used the children's actual raw scores that range from 0 to 15 in Cycles 1

and 2, and from 0 to 20 in Cycles 3. According to Worswick (2001), the choice between raw and scaled scores is inconsequential because they yield the same results.

4.2.3 Independent variables

4.2.3a Overview

The independent variables used in this study represent personal, familial, and social capital attributes of the child. The impact of these factors on the academic performance of the students is tested and examined in this study.

Knowing how each independent variable is treated during the regression analysis and during the interpretation of results is important. Some variables are treated using the "effect coding" signifying that the regression coefficient is the impact on the dependent variable for every one-unit of change in the independent variable (UCLA Academic Technology Services, n.d.a). On the other hand, some variables use "dummy coding" where "dummies" or reference categories are used for comparison within one variable divided into multiple categories (Ibid.). Therefore, the coefficient result is the impact on the dependent variable of that category compared to the reference category. For example, if the reference category of the gender variable is "female". The regression coefficient result for the category "male" is the impact of being male is on the dependent variable compared to females in the sample. Figure 2 lists the 12 independent variables and if dummy coding (∞) was used in the analysis:

Figure 2: Independent Variables

Familial & Personal Characteristics of the Child	Social Capital Indicators
• Immigrant status (subdivided by region of origin)[∞] • Age • Age at immigration[∞] • Number of years since immigration[∞] • Child's linguistic characteristics[∞] • Parents' attitudes toward receiving good grades • Parents' educational aspirations for their children • Gender[∞] • Household socio-economic status (SES)	• Children's participation in social activities outside of the school setting[∞] • How well children got along with others • If children spent time with their friends daily[∞]

4.2.3b Immigrant generation status

In order to identify the children's immigrant generation status, three variables indicating the country of birth of the child, the mother and father were interacted (or combined). Doing this enabled the study to identify: (1) 'immigrant children'; (2) 'first generation children' and (3) 'non-immigrant children'. To expand the analysis, the regional categories (outside of Canada) were also created for immigrant and first generation children. Using the countries of birth specified in the NLSCY, the regional categories created include: (1) 'the United States (U.S.) and Europe'; (2) 'Asia' and (3) 'Other'. Countries in the first regional grouping included the U.S., the United Kingdom, France, Germany, Greece, Hungary, and Italy. Asia included China, Hong Kong, India, the Philippines, and Vietnam. The last regional category (i.e., "Other) included Guyana, Jamaica and the other countries not specified on the list provided by the NLSCY (Statistics Canada, n.d.a).

4.2.3c Time factors

The age variable is an ordinal variable that increases by one year. Children who are newborn to 11 months old are reported at 'zero' years. The variables for age at immigration and the number of years since immigration are nominal with the following categories: (1) 'Not an immigrant'; (2) '0 to 4 years'; and (3) '5 years and above'. Thus, non-immigrant children are the reference category.

4.2.3d Ethnocultural characteristics

Aside from the regional groupings found in the immigrant generation status variable, children's linguistic characteristics and parents' attitudes towards education were used to signify ethnocultural characteristics. The language variable identifies the language(s) the child first learned at home and is still able to use. This nominal variable is divided into the following categories: (1) 'Child does not speak English or French'; (2) 'Child is bilingual and may also speak another language'; (3) 'Child speaks English and may also speak another language other than French'; and (4) 'Child speaks French and may also speak another language other than English'. Children who speak neither French nor English are the reference category.

Two ordinal variables were used to assess the impact of parents' attitudes towards education. The first measures the level of importance or the value parents place on their children's academic performance as measured by good grades at school. The order of responses is as follows: (1) 'Not important at all'; (2) 'Somewhat important'; (3) 'Important'; and (4) 'Very important', with the first category as the reference category. The second variable gives the highest level of educational attainment that parents hope their children will pursue in the future.

The order of responses is as follows: (1) 'Primary school'; (2) 'High school'; (3) 'Community college or trade school'; and (4) 'University'.

4.2.3e Gender & Socio-economic status (SES)

The gender variable in this study is a binominal variable that used female children as its reference category.

The socio-economic status (SES) variable is commonly used in sociological studies. Statistics Canada used the Pineo-Porter scale to derive the SES variable used in the NLSCY (Statistics Canada, n.d.a). Each household is assigned a numerical SES value derived from the following components: (1) the level of education of both parents stated in the number of years at school; (2) the occupation prestige of both parents from 16 ranked occupations established by Pineo, Porter and McRoberts (1977); and (3) the total household income (Ibid.). The SES variable is included in the regression analyses as a numerical ordinal variable though it is re-categorized into quartiles to yield descriptive results (i.e., mean scores). This quartile re-categorization is as follows: (1) 'Low SES (includes the 25th percentile and lower)'; (2) 'Mid-Low SES (includes the 26th to the 50th percentile)'; (3) 'Mid-High SES (includes the 51st to the 75th percentile)'; and (4) 'High SES (includes the 76th to the 100th percentile)'.

4.2.3f Social capital indicators

This study included three variables to represent children's social capital. The first is a binomial variable that identifies the child's participation in social activities outside of the school environment. Children who do not participate in any extracurricular activities is the reference category. This variable was created from four other variables that measure the frequency of

children's participation in organized and unorganized sports teams or clubs, arts lessons and social clubs or community groups. The second social capital variable is also a binomial variable that identifies if children spent time with their friends on an everyday basis. Children who do not see their friends daily are the reference category. The last social capital variable is an ordinal variable that measures how well the child gets along with others. The order of responses is as follows: (1) 'Not well at all and with constant problems'; (2) 'Not too well with frequent problems'; (3) 'Pretty well with occasional problems'; (4) 'Quite well with hardly any problems'; and (5) 'Very well without any problems'.

5 Results

5.1 Descriptive Results and Discussion

5.1.1 Overview

The following section describes the characteristics of the children in Cycles 1, 2 and 3 based on the variables used in this study. When appropriate (and possible), mean scores will be listed to show: (1) if the academic performance of immigrant, first generation and non-immigrant children are different; and (2) if personal, familial, and social capital attributes have an impact on children's scholastic achievements. Note that these results have been weighted using cross-sectional weights provided Statistics Canada and do not reflect the actual raw frequencies in the cycles.

5.1.2 Immigrant generation status

Table 4 lists the weighted frequencies of immigrant, first generation and non-immigrant children in Cycles 1, 2 and 3 where immigrant and first generation children are further disaggregated into their regional categories. From it we see that non-immigrant students make up 73.6% of Cycle 1, 74.8% of Cycle 2 and 75.8% of Cycle 3. Also, 21.7%, 21.5% and 21.3% are first generation children from Cycles 1, 2 and 3 respectively. Lastly, there were only 4.7%, 3.7% and 3.0% immigrant children in Cycles 1, 2 and 3 respectively. Beiser et al. (2005) have criticized the low proportion of immigrant children in the NLSCY as not truly representative of the demographics of children in Canada. What is also alarming, at least from the data in Cycles 1, 2 and 3, is the declining trend in an already low proportion of immigrant children in these samples.

To compare the academic performance of students in the NLSCY, the study will look at the children's mean scores and the coefficients from the regression analyses. Comparing mean scores was one of the methods Worswick used in his 2001 study. As for using regression coefficients, we are able to control for other factors and simply examine the effect of being an immigrant or a first generation to children's academic performance.

As seen below, Table 5 lists the mean scores of children divided by their immigrant generation status for both Group A and B. Group A measures the overall academic performance of children based on their parents' assessment where the values range from [1 ≡ 'Very poorly' to 5 ≡ 'Very well']. According to the mean scores, most children are found to be doing "Well" overall, regardless of their place of birth. The results show that there is no significant difference between immigrant and first generation children compared to their non-immigrant counterparts.

According to the results listed in Table 5, the differences in mean scores between (1) non-immigrant and immigrant and (2) non-immigrant and first generation in Group A do not exceed a value of |±0.5000|. Overall, therefore, the results in Group A agree with the OECD (2006) findings that in Canada, immigrant and non-immigrant children perform at similar academic levels.

Table 5 also shows the mean scores from children's Math exams. The mean scores are also converted into percentage scores for ease of comparison. For example, children who received a mean score of 7.5 out of 15 questions in Cycles 1 and 2 will have a percentage score of 50% while children who received a mean score of 10 out of 20 questions in Cycle 3 will also have a percentage score of 50%. Using this method, therefore, non-immigrant children received mean scores equivalent to 61.2%, 58.7% and 51.5% in Cycles 1, 2 and 3 respectively. These percentages are then compared to the mean scores received by immigrant, and first generation students in the NSLCY.

We find that immigrant children born in the U.S. or Europe outperform non-immigrant children by 4.5%, 4.2% and 13.9% in Cycles 1, 2 and 3 respectively. Immigrant children born in Asia also outperform their non-immigrant counterparts by 0.2%, 5.6% and 19.7% in Cycles 1, 2 and 3 respectively.[1] Lastly, children born outside of the U.S., Europe or Asia slightly underperformed by -4.7% in Cycle 1 and -0.7% in Cycle 2. However, these students outperformed non-immigrant students in Cycle 3 by 5.1%.

Comparing first generation and non-immigrant children shows us that there is no significant difference in their academic performance in all three cycles. In Cycles 1 and 3, first

[1] These latter findings are consistent with Ma's findings in 2003, where he found that Asian students in Canada received higher Math scores from the PISA exams.

generation children slightly outscored non-immigrant children with an average mean score difference of 0.3% and 3.0% respectively. In Cycle 2, however, first generation children slightly underperformed with an average mean score difference of -1.5%.

Looking at the results based on regional disaggregation, it appears that there is no significant difference in the academic performance of first generation children with one or two parents from the U.S. or Europe and their non-immigrant counterparts. However, first generation children with immigrant parents from Asia had mix results. The results suggest that if the children's parents were both born in Asia, their results outscore non-immigrant children by 9.4%, 0.3% and 3.5% in Cycles 1, 2 and 3 respectively. However, if one of their parents were not born in Asia, they seem to perform at inferior levels compared to non-immigrant children with mean scores that are lower by -8.7% and -8.0% in Cycles 1 and 2 respectively. In Cycle 3, these children outperform their non-immigrant counterparts by a huge margin of 14.8%. Lastly, first generation children with both immigrant parents born outside of the U.S., Europe or Asia slightly outscores their non-immigrant counterparts by 2.4%, 5.1% and 4.3% in Cycles 1, 2 and 3 respectively. However, these children with one parent born in Canada and the other parent born in these other countries perform at similar rates as their non-immigrant counterparts. Overall, therefore, first generation students outperform their non-immigrant counterparts in Math exams.

5.1.3 Time factors

The ages of the children included in Group A models are between (1) 4 to 11 in Cycle 1; (2) 4 to 13 in Cycle 2; and (3) 4 to 16 in Cycle 3. As for Group B models, the children were: (1) 6 to 11 in Cycle 1; (2) 6 to 13 in Cycle 2; and (3) 5 to 16 in Cycle 3. Literature suggests that

academic difference between immigrant and non-immigrant children will eventually converge as children grow older (Worswick, 2001; Sweetman, 1998). To verify this argument, we will use the coefficient results for age in the regression models instead of comparing mean scores.[2]

As for age at immigration and years since immigration, Tables 6 to 9 will give us their frequencies and mean scores for comparison. However, note that first generation children have been included in the non-immigrant categories for these results, as these children were also born in Canada, and did not migrate to Canada.

According to the data in Table 6, 61.4%, 63.9% and 67.8% of immigrant children in Cycles 1, 2 and 3 respectively arrived in Canada at age four or younger. Looking at the difference in their mean scores for Group A, there appears to be no significant difference in the overall academic performance of immigrant and non-immigrant children. According to their parents' assessment, they are all doing "Well" as mean scores range from 4.0755 to 4.3213 for all three cycles. Similarly, looking at mean scores from Group B also show that there is no significant difference in the academic performance of non-immigrant children and immigrant children regardless of their age at arrival in Canada in Cycles 1 and 2 (see Table 7). The mean score differences between non-immigrant and immigrant children were very close and ranged from -3.9% to 5.0%. However, in Cycle 3, it appears that children who immigrated to Canada at a young age received a mean score that is higher than non-immigrants by 17.5%. Cycles 2 and 3 results also show a pattern that immigrant children who arrived younger received higher mean scores than those who immigrated at an older age. These findings support Worswick's (2001) and Sweetman's (1998) studies that academic performance of children converges as they grow

[2] Mean scores cannot be used for comparison because the study is unable to release data that disaggregate immigrant and first generation children into their age groups due to small cell counts falling below Statistic Canada's data privacy thresholds.

older because older immigrant students have no distinct academic difference when compared to their non-immigrant counterparts.

Table 8 shows that there is roughly an equal amount immigrant children who have recently migrated to Canada, and immigrant children who have been living in Canada for a longer period of time. The data shows that 55.0%, 42.7% and 53.5% of immigrant children in Cycles 1, 2 and 3 respectively have been living in Canada for four years or less. On the other hand, 45.0%, 57.3% and 46.5% of immigrant children in Cycles 1, 2 and 3 respectively have lived in Canada for 5 years or more.

Comparing the children's mean scores from Group A suggests that there is no significant difference in the overall performance of non-immigrant and immigrant children regardless of how long they have lived in Canada. Their mean scores ranged from 4.0755 to 4.3213 which means that at least according to their parents, all the students are doing "Well" at school. However, the mean scores of immigrant students who recently arrived in Canada (i.e., those who have lived in Canada four years or less) outscore non-immigrant students. Table 9 shows that newly arrived immigrant children outscore non-immigrant children by 9.1% in Cycle 1, 6.4% in Cycle 2 and 16.6% in Cycle 3. Interestingly, however, there appears to be no significant difference in the academic performance of immigrant children who have lived in Canada for five or more years when compared to non-immigrant students. As also listed in Table 9, this group of immigrant children has mean scores differences of -3.9%, 2.0%, and 2.6% when compared to non-immigrant students in Cycles 1, 2, and 3 respectively. These findings that suggest that newly arrived immigrant children outperform all other students is consistent with Ma's (2003) findings. The longer immigrant students live in Canada, the older they become as well. Once again, the findings support Worswick's (2001) and Sweetman's (1998) theory of aging and how

over time, the academic performance of children converges. To an extent, these findings can also be extended to support the equalizing function of integration as experienced by immigrant students the longer they live in Canada. However, only half of the hypothesis is proven to be correct, as the impact of integration was not necessarily positive (i.e., it did not increase the scores of immigrant children), but rather decreased it to equal non-immigrant students over time. These findings also suggest the ability of Canada's education system to harmonize children's performances regardless of their background. This is a welcomed result if immigrant children were lagging behind academically as suggested by previous studies. However, these findings suggest the need for educators and policymakers to recognize, support, and even harness the certain aptitudes of immigrant children upon entering in Canadian schools to encourage continued excellence even at a young age.

5.1.4 Ethnocultural factors

Table 10 shows the breakdown of the languages children first learned in their homes and continued to understand. The proportion of each linguistic group stayed the same for each cycle. English-speakers are the dominant group, and make up about 69% of each cycle. French-speakers make up about 21% of each cycle while children who speak both English and French make up about 8% of each cycle. The proportion of children who speaks neither English nor French, however, slightly increased from 1.8% in Cycle 1 to 2.0% in Cycle 2 to 2.5% in Cycle 3. Comparing these figures to the total percentage of immigrant children in each cycle (i.e., 4.8% in Cycle 1, 3.6% in Cycle 2, and 2.9% in Cycle 3), we find an increasing trend that new immigrant children arriving in Canada do not learn English or French in their homes. More specifically,

38% in Cycle 1, 56% in Cycle 2, and 86% in Cycle 3 of immigrant children first learned a different language in their homes.

The next thing to examine, however, is if this linguistic profile a source for concern as hinted at by previous studies. Table 11 shows a lot of variance in the mean scores found in Group A where they range from 3.7848 to 4.2233 in Cycle 1, 3.7702 to 4.3023 in Cycle 2 and 3.6143 to 4.1555 in Cycle 3. However, rounding up these mean scores to their equivalent meaning in the first dependent variable used in Group A still show that parents believe that their children are doing 'Well' overall.[3]

As for mean scores calculated from Math scores, the study yielded mixed results. As listed on Table 11, comparing the results yielded the following observations:

- In Cycle 1, children who did not learn English or French in their homes had similar mean scores as children who spoke English and French, English and another non-French language, and French only. However, these children whose mother tongue were neither English nor French outscored children who only spoke English, and underperformed compared to children who learned English, French, and another language.

- In Cycle 2, children who did not first learn English or French in their homes generally lagged behind all other linguistic group of students except for children who spoke English, French, and another language, and children who only learned English

[3] The use of Group A results are therefore becoming questionable. It is unknown whether or not parents in the NLSCY sample are able to objectively gauge the academic performance of their children. It appears that the results from Group A regression analysis may not have enough variance for us to extract any meaningful relationships and conclusions for this particular study.

in their homes. These two groups received similar mean scores as children from the reference category.

- The results in Cycle 3 are opposite to the results found in Cycle 2. In general, children who came from non-English-speaking, and non-French-speaking households outperformed all other students, except for students who spoke French and other who received similar mean scores.

The mixed findings from all three cycles may suggest the weak linkages between linguistic skills and the aptitudes necessary to do well in Mathematics. This same observation was also found by Ma's 2003 study. The findings from Cycle 3 also suggests that increasing rates of immigrant students who came from homes whose mother tongue are neither French nor English is not a source of concern for educators and policymakers, at least in Math education.

Parents' attitudes towards education have a great influence on the academic performance of children. As seen in Table 12, over 90% of parents place great importance on their children's ability to receive good grades at school. This shows that parents in the NLSCY sample want their children to do well which hints at the presence of parental expectations and pressures exerted on all students in the study.

Table 13 lists the mean scores divided by the level of importance parents place on their children's ability to receive good grades. As for Group A mean scores, it appears that parents continually assess their children's overall academic performance as doing 'Well' regardless of the level of importance parents place on their children's receipt of good grades. (The mean scores range from 3.5999 to 4.2839 which all round up to an academic assessment of 4 ≡ 'Well'.)

However, Group B mean scores show more variation and insight about the impact of parents' expectations. Cycle 2 gives the most commonsensical results because as parents increase the level of importance on the receipt of good grades, the children's mean scores also increases steadily. For example, when parents responded that receiving good grades is "Not important at all", the children's mean score is 49.1%. As the level of importance increased to "Somewhat important", so did the children's mean score to 54.2% or a positive change equivalent to 5.2%. Children whose parents responded that it was "Important" received a mean score of 55.3% which is a 1.1% increase from the previous level of importance. Lastly, children whose parents responded that receiving good grades was "Very important" received a mean score of 58.3% which is a 3.0% increase from the previous level of importance.

However, the mean scores from Cycles 1 and 3 yielded a different pattern. In Cycle 1, the mean scores were the same for every category except for it being lower for parents who find receiving good grades as 'Somewhat Important'. In Cycle 3, the mean scores of children whose parents state that the receipt of good grades is 'Not important at all', and those who find it 'Very Important' have the same and higher mean scores, while children whose parents say that it is 'Somewhat Important' or 'Important' had lower mean scores.

The second variable used to measure parents' attitudes is the educational aspirations parents have for their children. As listed on Table 14, parents from all three cycles of the NLSCY sample want their children to go beyond primary school. In Cycle 1, the majority of parents (75.7%) responded that they hope their children will pursue university while 18.1% of parents chose community college or trade school. However, the trend reverses in the other two cycles where 84.9% and 86.5% of parents hope that their children would complete college or

trade school while only 7.4% and 6.3% want their children to pursue a university degree in Cycles 2 and 3 respectively.[4]

Table 15 shows the mean scores divided by the parents' educational aspirations for their children. As seen in previous Group A mean scores, parents continue to assess their children's academic performance as doing 'Well' with mean scores ranging from 3.5684 to 4.3214.

Group B mean scores from Cycle 1 show a commonsensical pattern where the increase in parents' educational aspirations for their children resulted in an increase in the children's mean scores. The mean scores were 52.2%, 54.1%, 59.3% and 61.6% for children whose parents hope that they would pursue 'Primary School', 'High School', 'College or Trade School', or 'University' respectively. The results from Cycles 2 and 3 also show some relationship between parents' educational aspirations and their children's academic performance. Consistent with the frequency results, however, children whose parents hope they would pursue 'College or Trade School' received higher mean scores than children whose parents want them to go to 'University' because of the reversed emphasis parents exerted in Cycles 2 and 3, when compared to Cycle 1.

5.1.5 Gender & Socio-economic status (SES)

As listed on Table 16, the gender distribution is consistently at 49% for female children and 51% for male children for all three cycles in the NLSCY sample. Once again, Group A mean scores suggest that children are doing 'Well' overall with their mean scores ranging from 3.9915 to 4.3058.

[4] Identifying the probable causes of the shift in parental attitudes is beyond the scope of this paper though it would be interesting to find out what socio-economic and macro-level factors could have caused these changes.

As for Group B, the mean scores suggest that there is no significant gender difference in the academic performance of children in Canadian schools. These are good results because it shows that there are no gender-specific biases in Canadian education.

The SES variable is included in the regression models as a continuous numerical value that ranges from (1) -3.324 to +2.821 in Cycle 1; (2) -3.511 to +2.801 in Cycle 2; and (3) -4.228 to +2.723 in Cycle 3. Because of the way the SES values have been reported in the models, the study is unable to release frequencies and tabulate mean scores due to Statistics Canada's privacy regulations regarding minimum cell counts. Therefore, the study will rely on regression coefficients to examine the impact of SES on children's academic performance.

5.1.6 Social capital indicators

Table 18 lists the breakdown of children's participation in social activities outside of the school environment. The results from Cycles 1, 2 and 3 reveal an increasing trend in the number of children who participate in some form of sports, creative arts or community groups over the years. More specifically, only 9,056 or 39.7% of the children in Cycle 1 participated in these social activities. This increased to 11,772 or 58.8% of the children in Cycle 2, and further increased to 21,051 or 65.9% of the children in Cycle 3.

Like other Group A mean scores, according to the parents' assessment of their children's performance in school, children in all three cycles are doing 'Well' overall regardless if they participate in social activities or not. Their mean scores are very similar, ranging from 4.1184 to 4.1813.

As for Group B mean scores, children who participate in social activities outside of the school environment receive slightly lower mean scores when compared to children who do not participate at all. Children who do not participate received a mean score of 58.7% and 57.1% from Cycles 2 and 3 respectively. However, children who participated received lower mean scores of 54.4% and 49.0% from Cycles 2 and 3 respectively.[5] These results challenge the argument that social capital through children's participation in extracurricular activities has a positive impact on children's academic performance. The regression coefficient results will also be used to verify this finding.

Table 20 shows the breakdown of how well children get along with others. The majority of the children included in this study, from all three cycles, are reported to get along 'Very Well' or 'Quite Well' with others. Children who get along "Very Well" with others represent about 59% to 60% of each cycle while children who get along "Quite Well" with others represent about 28% to 29% for each cycle. Children who encounter constant or frequent problems when interacting with others remain at 1% of each cycle.

As for mean scores listed in Table 21, there seems to be a relationship between how well children get along with others and their overall academic performance. Parents thought that children who do not get along with others and encounter frequent problems do 'Average' or 'Well' at school with mean scores ranging from 3.0445 to 4.0417. However, children who got along with others are doing 'Well' with mean scores ranging from 3.7705 to 4.3271.

As for Group B mean scores, Cycle 3 provided the most commonsensical pattern suggesting that as children gets better at getting along with others, so will their mean scores.

[5] Please note that Cycle 1 mean scores were not released from Statistics Canada's Research Data Centre because of insufficient cell counts (RDC).

Children who do not get along with others and experience constant social problems received a significantly lower mean score of 33.4% while children who got along 'Quite well' and 'Very well' with others received mean scores of 58.9% and 57.5% respectively. As for Cycles 1 and 2, a pattern emerges. Children who do not get along with others at all received the highest mean scores for both cycles. However, the results also show that for both cycles, children who get along 'Quite Well' and 'Very Well' with others have slightly higher mean scores than other children.

The last variable used to measure social capital in the study compared children who spent time with their friends on a daily basis to children who did not. Majority of the children in the sample did not see their friends every day. Only 20.8%, 12.4% and 9.6% of children in Cycles 1, 2 and 3 respectively spent time with their friends every day. These results also show us a significantly decreasing trend in the number of children who are able to spend time with their friends on a regular daily basis.

Table 23 shows the breakdown of the mean scores. Once again, Group A mean scores show that parents thought that their children are doing 'Well' regardless of the frequency that their children spent time with their friends. The children's mean scores range from 4.1082 to 4.2451.

As for Group B results, children in Cycles 1 and 2 did not show any significant different in mean scores whether or not they spent time with their friends on a daily basis. However in Cycle 3, we see that children who spent time with their friends daily had a slightly higher mean score of 56.1% compared to 50.8% for children who did not do the same.

5.2 Regression results and Discussion

5.2.1 Overview

In total, six models were created using multivariate OLS regressions from Cycles 1, 2 and 3 of the NLSCY (see Table 24). Group A has 3 models using the parents' assessment of their children's academic performance as its dependent variable. Group B also has 3 models using the raw Math scores of children as its dependent variable. The 3 models in Group A had the following number of cases or observations:[6] 5,569 in Cycle 1; 1,677 in Cycle 2; and 1,727 in Cycle 3. Models in Group B had: 2,979 observations in Cycle 1; 1,272 in Cycle 2; and 951 in Cycle 3.

To an extent, the success of the analysis can be determined by the r^2 values of each model, and if the models are statistically significant. The results show that all six models are statistically significant as determined by the *probability value* of the *F-Test* whereby all six models received a *p-value* of 0.0000 (also see: UCLA Academic Technology Services, n.d.a). The regression model from Cycle 1 – Group A has an r^2 of 0.1536 which means that approximately 15% of the variability of the children's academic performance is accounted for by the independent variables chosen in this model (also see: Ibid.). In other words, the combination of the independent variables in the model is able to explain 15% of what impacts the overall academic performance of children. The model from Cycle 2 – Group A has a slightly lower r^2 of 0.1318 and explains 13% of the variability of children's academic performance. Lastly,

[6] Notice that the number of observations included in each of the model is significantly smaller compared to the number of cases available in each cycle. These observations represent the cases in the sample that have a valid response (i.e., non-missing values) for the combination of variables included in the regression model. For example, children who did not take the math exams are removed from the models in Group B; thus lowering the number of cases from the cycle's total sample to be included in the model. This selection process is applied using all of the independent variables to come up with the number of eligible observations in each model.

the r^2 from Cycle 3 – Group A increases slightly at 0.1453 and explains 15% of the variability of children's overall academic performance in that particular model.

As for Group B models, Cycle 1 has an r^2 of 0.1447, Cycle 2 has an r^2 of 0.1456 and Cycle 3 has an r^2 of 0.2118. These translate to the models explaining 14%, 15% and 21% of the variability of children's Math scores in Cycles 1, 2 and 3 respectively.

In order to answer the questions set out by this study, only statistically significant coefficients will be used to explain what each regression model is telling us about the children's academic performance, and the different factors that affect them.

5.2.2 Regression results from Cycle 1

5.2.2a Regression results from Cycle 1 – Group A

Recall that the reference category for immigrant generation status categories is non-immigrant children. In Cycle 1 – Group A, coefficients for immigrant children are not statistically significant suggesting that there is no difference in the academic performance of immigrant and non-immigrant children. As for first generation children, two categories yielded significance. First generation children with one parent born in Canada and another born in the U.S. or Europe received a weak and negative coefficient value of β = -0.1371 which means that compared to non-immigrant children, they will receive a slightly lower academic assessment when all other variables are kept constant. The second category with a statistically significant coefficient is first generation children with one parent born in Canada and another born in 'Other', or outside of the U.S., Europe or Asia. Unlike the first result, this category has a positive but also weak coefficient of β = 0.2224. Although these regression coefficients are statistically significant, they are both negligible. Therefore, we can argue that there is no

significant difference in the academic performance between first generation and non-immigrant children in Canada, at least in the eyes of the children's parents.

Also in Cycle 1 – Group A, the language variables received the strongest coefficient values which suggest that children's linguistic skills have the most impact on their academic performance. Children who speak English, French or both received higher statistically significant coefficient values when compared to children who speak neither French nor English. Children who speak both official languages who may or may not also speak another language are expected to receive higher academic assessments by a value of $\beta = 0.5994$ compared to children who speak neither of Canada's official languages. Children who only speak English are expected to have higher academic assessments by a value of $\beta = 0.5395$ while children who only speak French are also expected to receive higher academic assessments by a value of $\beta = 0.4917$.

Other variables also yielded statistically significant coefficients but remain weak. For example, the higher the level of importance parents place on receiving good grades in school, the higher the child's overall academic performance by a value of $\beta = 0.1710$. However the coefficient value is small which suggests that its impact on children's academic performance is limited. Similarly, as parents' educational aspirations for their children increases by a level (i.e., primary school → high school → college → university), the higher the child's expected academic performance by a value of $\beta = 0.2861$. Although still a relatively weak coefficient, this variable has a stronger impact on children's academic performance compared to the previous one. Children who participate in social activities outside of the school setting are expected to receive higher academic assessments from their parents by a value of $\beta = 0.1215$ compared to children who do not participate in these types of extracurricular activities. The SES characteristics that a child belongs to also has a positive but very weak coefficient value of $\beta = 0.0903$. This weak

coefficient can be attributed to the way SES is reported in the model. However, this finding still suggests that as SES increases, so does the academic performance of children. Lastly, compared to female children, male children are expected to have slightly lower academic performance because its regression coefficient is a negative but weak at a value of β = -0.2146 when all other variables are kept constant.

5.2.2b Regression results from Cycle 1 – Group B

Similar to results found in Cycle 1 – Group A, immigrant children did not receive statistically significant coefficients in Cycle 1 – Group B which suggests that being an immigrant does not have an impact on children's academic performance. As seen in Table 24, the only category that yielded statistically significant results in the immigrant generation status variable is first generation children with parents born in Asia who actually outscore non-immigrant children in Math exams by a value of β = 1.6704 when all other variables are held constant. This finding is consistent with the mean scores found in this study, as well as other studies that show that students from Asian-descent families have higher aptitudes in Mathematics.

However, immigrant children who have been living in Canada for 5 years or more receive lower Math scores by a large value of β = -2.4763. Once again, this is consistent with the mean scores received in this study. Newly arrived immigrant children received significantly higher mean scores compared to their non-immigrant counterparts, while mean scores converge the longer immigrant children lived in Canada, and as they grow older. However, this negative and large coefficient suggests that the academic performance of immigrant children continue to decrease even after their scores converge with non-immigrant students. This is a significant finding because as explained earlier, although the integration of immigrant students does

equalize the academic performance of immigrant children to non-immigrant children. The results may not be desirable as the current education system is unable to support or encourage excellence in the Mathematical aptitudes of immigrant children once they've entered Canadian schools.

As for the impact of age, children's math scores are expected to increase by a value of $\beta = 0.7574$ for every year the child ages in Cycle 1. This is a fairly strong coefficient value although it is not duplicated in other cycles. If the starting premise states that immigrant children are at an academic disadvantage compared to non-immigrant students. Then the results from Cycle 1 are consistent with the theory of aging that Worswick (2001) and Sweetman (1998) found, suggesting that children's scores converge as they grow older. However, this starting premise was not found in this study, and appears to be inconsistent with the rest of the models because it appears that as immigrant children ages, their scores become lower.

As for parental attitudes, like Group A – Cycle 1 results, the higher the level of importance parents place on receiving good grades, the higher the child's overall academic performance by a value of $\beta = 0.2638$. Similarly, as parents' educational aspirations for their children increases by a level, the higher the child's expected academic performance by a value of $\beta = 0.3292$. These coefficients show that parents' attitudes have a positive impact on the academic performance of children.

Social capital factors also show positive impact on children's academic performance. Children who participate in social activities outside of the school environment are expected to receive higher Math scores by a value of $\beta = 0.9038$ compared to children who do not participate

in these activities. Also, children's expected Math scores will increase by a value of $\beta = 0.2800$ for every one-unit change in children's ability to get along better with others.

Lastly, for every one-unit increase in SES, children will also receive higher math scores by a value of $\beta = 0.6175$ suggesting that children from more affluent backgrounds do better academically.

5.2.3 Regression results from Cycle 2

5.2.3a Regression results from Cycle 2 – Group A

In Cycle 2 – Group A, the coefficients of immigrant children are once again statistically insignificant. This suggests that there is no difference in the academic performance of immigrant and non-immigrant children. As for first generation children, only those with immigrant parents born in the U.S. or Europe have a statistically significant coefficient with a value of $\beta = 0.6694$. This means that these children are expected to outperform their non-immigrant counterparts when all other variables are kept constant. Similar to the trend found in the two previous models, the higher the level of importance parents place on receiving good grades in school, the higher the child's overall academic performance by a value of $\beta = 0.2887$. As for social capital indicators, only the children's ability to get along with others yielded a statistically significant coefficient. For every one-unit increase in the child's ability to get along better with others, the children will also receive higher Math scores by a value of $\beta = 0.1607$. Lastly, SES continues to have a positive impact on children's academic performance by an increase of $\beta = 0.2175$ for every one-unit increase in SES values.

5.2.3b Regression results from Cycle 2 – Group B

The coefficient results for immigrant and first generation children in Cycle 2 – Group B did not yield statistically significant coefficients which suggest that there is no academic difference between them and non-immigrant children. Age at immigration, linguistic skills and SES are the only factors that yielded statistically significant coefficients. In this model, children who immigrated to Canada when they were five years old or older are expected to receive higher Math scores by a value of $\beta = 5.5843$ compared to their non-immigrant counterparts when all other variables are held constant. As for linguistic characteristics, children who speak French are expected to receive higher Math scores by a value of $\beta = 3.8628$ compared to children who speak neither French nor English. Lastly, a one-unit increase in the child's household SES is expected to result to an increase in children's Math scores by a value of $\beta = 0.7998$.

5.2.4 Regression results from Cycle 3

5.2.4a Regression results from Cycle 3 – Group A

In Cycle 3 – Group A, immigrant children born in Asia are expected to do better than their non-immigrant counterparts by a value of $\beta = 1.1551$. This is the only time that an immigrant category yielded a statistically significant coefficient and its positive result contradicts the dominant argument that immigrant children perform at inferior levels compared to non-immigrant children. This positive result also supports the mean scores in the study that showed immigrant children outperforming their non-immigrant counterparts. However, first generation children with immigrant parents born in the U.S. or Europe have a slightly negative coefficient value of $\beta = -0.3970$ compared to their non-immigrant counterparts. However, first generation children with immigrant parents born in Asia are expected to slightly do better than

their non-immigrant counterparts by a value of $\beta = 0.4318$. Similarly, first generation children with immigrant parents born outside of the U.S., Europe or Asia are also expected to slightly outperform non-immigrant children by a value of $\beta = 0.2974$. Overall, it seems that the majority of first generation children in this model outperform non-immigrant students.

Like other models in this study, as parents increase the importance of receiving good grades in school, it is expected that children's academic performance will slightly increase by a value of $\beta = 0.1982$. Social capital indicators also have a slightly positive impact on children's academic performance. Compared to children who do not participate extracurricular activities, children who do are expected to have a slightly higher academic performance by a value of $\beta = 0.2578$. Also, for every one-unit of change in children's ability to get along better with others, children's academic performance are expected to slightly increase by a value of $\beta = 0.2079$. As for personal characteristics like gender and SES, male children are expected to have a slightly lower academic performance by a value of $\beta = -0.2577$ compared to female children with the same characteristics. However, consistent throughout the study, a one-unit increase in SES has a positive though weak impact on the academic performance of children with a value of $\beta = 0.1586$.

5.2.4b Regression results from Cycle 3 – Group B

Once again, coefficients for immigrant children are statistically insignificant supporting the main finding of this study that there is no difference in the academic performance of immigrant and non-immigrant children. As for first generation children with parents born outside of the U.S., Europe or Asia, they outperform their non-immigrant counterparts with a value of $\beta = 2.8974$.

As for time factors, the model also found that children who immigrated to Canada when they were 4 years old or younger will receive higher Math scores by a value of β = 3.0682 when compared to non-immigrant students. Consistent with the findings in Cycle 1 – Group B, immigrant children who have been living in Canada for 5 years or more will receive lower Math scores when compared to non-immigrant children with a value of β = -5.0571. This is a significant academic gap between immigrant and non-immigrant children. This finding disproves the hypothesis that integration of immigrant students has a positive impact on their academic performance.

Another result from this model that affirms the higher academic performance of immigrant children in Canadian schools, at least in their Mathematical aptitudes is the finding that children who only speak English will receive lower Math scores by a value of β = -4.4215 compared to children who speak neither French nor English. This contradicts Worswick's (2001) argument that children's underperformance is primarily attributed to not being able to communicate in English or French.

Lastly, and as consistent with all other models in this study, SES has a positive impact on children's academic performance. For this model, in particular, for every one-unit increase in the children's household SES, it is expected that their academic performance will also increase with a value of β = 1.9689.

6 Conclusion

6.1 Summary

It appears that the results from this study contradicts the arguments and findings of previous studies that suggest that immigrant and first generation students academically perform at lower levels. At least consistent with studies by Ma (2003), Rumbaut (1997), and Zhang, Ollila, and Harvey (1998), students from Asian-descent families outperform all other students in Mathematics. Despite the slight advantage of this specific group of students, however, most of the findings of this study affirm the OECD's 2006 findings that there is no significant difference in the academic performance of immigrant and non-immigrant children in Canadian schools. The influence of time factors on children's academic performance given an interesting insight, however. It shows that immigrant children who migrated at a younger age do better than other immigrant, and non-immigrant students. However, as time goes by, which suggest both aging and integration, the academic performance of immigrant children also dimishes. As for other factors, parents' attitudes towards education, social capital indicators and SES levels have a consistent positive impact on the academic performance of children, while language skills did not play a role in the Math aptitudes of students. The study also found that there is no gender difference in the academic performance of children in Canadian schools.

6.2 Reflections

The lack of difference in the academic performance of immigrant and non-immigrant children in this study should not be interpreted as a lack of a problem. Instead, it is a challenge to ensure that this equity continues in Canadian schools. To an extent, these positive results can be taken as verification that Canada's education system is doing something right to ensure the

academic development of all students, regardless of their place of birth. However, further studies are needed to see if this immigrant-friendly education is experienced throughout Canada. Specifically, analyzing Canada's English-as-a-Second-Language (ESL) and French-as-a-Second-Language (FSL) programmes will help identify what is working and what can be improved upon to assist immigrant children in Canadian schools. This will give insight not only about the needs of students but also of teachers.

Although convergence in academic performance is usually a desired outcome, some of the results of the study hint at a scenario where integration yielded negative outcomes. It seems that the academic performance of immigrant children start to decline **after** they enter Canadian schools as a result of the forces they encounter there. This conclusion is based on the following observations: (1) there is no statistically significant difference in the academic performance of immigrant and non-immigrant children; (2) mean scores suggest that immigrant children actually outscore non-immigrant children; but (3) immigrant children who have lived in Canada for five years or longer have lower academic results than non-immigrant children. Taken together, it seems that there is deterioration in the academic aptitudes of immigrant children over time. This can hint at issues with the education system or the students' experiences in the schools. Interventions are necessary to ensure that immigrant children are encouraged to develop into their utmost potential rather than the opposite. Therefore, finding out what could cause this is a recommended course of action from this study.

Policies that support immigrant parents will actually have a positive impact on the academic performance of children. Specifically, improving the SES of immigrant households is a desirable place to start because their benefits go beyond the academic performance of children. Policies that target poverty in immigrant families are important because studies have found that

there is a higher incidence of poverty in families of recent immigrants to Canada (Reitz & Banerjee 2006; CCSD 2006; Mitchell & Shillington 2002; Mahon 2001). Advocacy for the accreditation of foreign credentials may also be beneficial because occupational prestige is included in the SES calculation. Ensuring that immigrant parents are able to engage in the labour market will also decrease the incidence of immigrant families in poverty. Lastly, the results from this study also showed how parents' attitudes towards education have a positive impact on children's performance. Literature has found that immigrant parents continue to be uninvolved in school communities and therefore, finding out how to minimize and bridge this gap can have a positive impact on children's educational outcomes (Glick & White, 2004).

Overall, this study produced useful results to counter-argue the dominant sentiment that immigrant and first generation children perform at inferior levels compared to non-immigrant students. It also highlighted the different factors that may affect the academic performance of children in Canadian schools. However, future studies are still recommended to verify the findings of this study using more appropriate datasets like OECD's PISA and perhaps the New Canadian Children and Youth Study (NCCYS), because some Canadian scholars argue that the NCCYS can provide better data to perform more rigorous analyses regarding the state of immigrant and first generation children in Canada (see Beiser et al., 2005). These recommendations are not to negate the results from this study because the NLSCY can still provide valid empirical evidence about the state of children in Canada that can be used as stepping stones to further public policy research.

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Table 1: Permanent Residents to Canada: 1988 to 2007

Year	Total Number of New Permanent Resident Immigrants in Canada
1988	161,929
1989	192,001
1990	214,230
1991	230,781
1992	252,842
1993	255,819
1994	223,875
1995	212,504
1996	226,072
1997	216,038
1998	174,197
1999	189,955
2000	227,458
2001	250,638
2002	229,049
2003	221,349
2004	235,823
2005	262,240
2006	251,643
2007	236,758
Total	**4,465,201**
Average per annum	223,260

Sources: Citizenship and Immigration Canada, 1997, 1999, 2008; Employment and Immigration Canada, 1991; Statistics Canada, 2008c; Ngo, 2007.

Table 2: 20 Years of Immigration (1988-2007) of Young Permanent Residents to Canada

Age / Year	0-14 yrs old	15-24 yrs old	Total (0-24 yrs old)
1988	37,474	30,987	68,461
1989	42,622	35,329	77,951
1990	45,466	36,220	81,686
1991	42,231	39,176	81,407
1992	46,198	43,780	89,978
1993	49,111	47,375	96,486
1994	44,547	39,407	83,954
1995	45,054	35,047	80,101
1996	52,124	35,132	87,256
1997	50,958	32,158	83,116
1998	40,002	27,092	67,094
1999	42,557	28,118	70,675
2000	51,176	32,695	83,871
2001	57,281	34,361	91,642
2002	50,961	31,604	82,565
2003	46,633	33,016	79,649
2004	50,912	35,869	86,781
2005	57,596	40,581	98,177
2006	51,319	40,673	91,992
2007	48,278	37,879	86,157
Total	**952,500**	**716,499**	**1,668,999**
Average per annum	47,625	35,825	83,450

Sources: Citizenship and Immigration Canada, 1997, 1999, 2008; Employment and Immigration Canada, 1991; Statistics Canada, 2008c; Ngo, 2007

Table 3: PISA Results for Canada compared to other OECD countries

Table 3.1: PISA Results for Canada compared to other OECD countries in Reading Exams

Country of birth	Student	PISA 2000[a] Mean Scores	PISA 2003[b] Mean Scores	PISA 2006[c] Mean Scores
Canada	non-immigrant[d]	538 (1.51)[f]	534 (1.58)	531 (2.18)
Canada	immigrant[e]	512 (4.60)	516 (4.36)	513 (5.34)
OECD Total[g]	non-immigrant	502 (2.05)	492 (1.19)	487 (1.01)
OECD Total	Immigrant	461 (4.34)	458 (3.36)	451 (2.72)
OECD Average[h]	non-immigrant	504 (0.63)	498 (0.65)	495 (0.58)
OECD Average	Immigrant	461 (2.19)	465 (1.72)	459 (1.96)

Table 3.2: PISA Results for Canada compared to other OECD countries in Math Exams

Country of birth	Student	PISA 2000[a] Mean Scores	PISA 2003[b] Mean Scores	PISA 2006[c] Mean Scores
Canada	non-immigrant	536 (1.39)	537 (1.60)	530 (1.78)
Canada	Immigrant	521 (4.88)	531 (4.38)	524 (4.90)
OECD Total	non-immigrant	502 (2.05)	493 (1.08)	487 (1.10)
OECD Total	Immigrant	461 (4.34)	464 (3.26)	455 (2.99)
OECD Average	non-immigrant	504 (0.63)	503 (0.65)	501 (0.53)
OECD Average	Immigrant	461 (2.19)	475 (1.75)	471 (1.77)

Table 3.3: PISA Results for Canada compared to other OECD countries in Science Exams

Country of birth	Student	PISA 2000[a] Mean Scores	PISA 2003[b] Mean Scores	PISA 2006[c] Mean Scores
Canada	non-immigrant	533 (1.58)	526 (1.85)	539 (1.79)
Canada	Immigrant	506 (5.02)	502 (4.89)	521 (4.93)
OECD Total	non-immigrant	502 (2.05)	500 (1.08)	495 (1.14)
OECD Total	Immigrant	461 (4.34)	465 (3.26)	455 (2.99)
OECD Average	non-immigrant	504 (0.63)	504 (0.61)	504 (0.51)
OECD Average	Immigrant	461 (2.19)	466 (1.74)	569 (1.82)

NOTES for Tables 3.1, 3.2 and 3.3:

a. Source: (OECD, n.d.a)
b. Source: (OECD, n.d.b)
c. Source: (OECD, n.d.c)
d. **Non-immigrant** students are those born in the country of testing.
e. **Immigrant** students are those born outside of the country of testing.
f. The numbers in parenthesis are **Standard Error** figures.
g. OECD Total represents the results identifying the OECD as single entity. This is calculated by PISA where each country contributes in proportion to the number of 15-year-olds enrolled in its schools.
h. OECD Average represents the country average or is the mean data for all OECD countries. This is calculated by PISA where each participating country contributes equally to the average.

Table 4: Frequency of children's immigrant generation status

Immigrant Generation Status	Frequency of children's immigrant generation status		
	Cycle 1	Cycle 2	Cycle 3
Non-immigrant children including second generation immigrants	13,889[a] (73.6%)[b]	12,369 (74.8%)	19,592 (75.8%)
Immigrant child born in the U.S. or Europe	276 (1.5%)	203 (1.2%)	235 (0.9%)
Immigrant child born in Asia	181 (1.0%)	106 (0.6%)	138 (0.5%)
Immigrant child born outside of the U.S., Europe or Asia	438 (2.3%)	300 (1.8%)	392 (1.5%)
First generation immigrant child with two immigrant parents born in the U.S. or Europe	388 (2.1%)	354 (2.1%)	521 (2.0%)
First generation immigrant child with two immigrant parents born in Asia	530 (2.8%)	489 (3.0%)	893 (3.5%)
First generation immigrant child with two immigrant parents born outside of the U.S., Europe or Asia	714 (3.8%)	564 (3.4%)	800 (3.1%)
First generation immigrant child with two immigrant parents born in different regions	300 (1.6%)	260 (1.6%)	414 (1.6%)
First generation immigrant child with one parent born in Canada and another born in the U.S. or Europe	1,468 (7.8%)	1,231 (7.4%)	1,817 (7.0%)
First generation immigrant child with one parent born in Canada and another born in Asia	99 (0.5%)	107 (0.7%)	192 (0.7%)
First generation immigrant child with one parent born in Canada and another born outside of the U.S., Europe or Asia	603 (3.2%)	552 (3.3%)	868 (3.4%)
Total	18,885 (100.0%)	16,535 (100.0%)	25,862 (100.0%)

KEY:

a. The first number is the weighted amount using cross-sectional weights for their respective cycle.

b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 5: Mean scores of children's academic performance divided by immigrant generation status

Immigrant Generation Status	Group A			Group B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Non-immigrant children including second generation immigrants	4.2298	4.1850	4.1516	9.1845[a] (61.2%)[c]	8.8073[a] (58.7%)	10.2937[b] (51.5%)
Immigrant child born in the U.S. or Europe	4.2128	4.2930	4.0818	9.8593 (65.7%)	9.4391 (62.9%)	13.0676 (65.3%)
Immigrant child born in Asia	4.1308	4.3343	4.3569	9.2220 (61.5%)	9.6443 (64.3%)	14.2391 (71.2%)
Immigrant child born outside of the U.S., Europe or Asia	4.1751	4.2971	4.1708	8.4805 (56.5%)	8.6962 (58.0%)	11.3104 (56.6%)
First generation immigrant child with two immigrant parents born in the U.S. or Europe	4.0940	4.3692	4.1687	9.2850 (61.9%)	8.3651 (55.8%)	10.1791 (50.9%)
First generation immigrant child with two immigrant parents born in Asia	4.3126	4.2650	4.1352	10.5894 (70.6%)	9.3080 (62.1%)	10.9968 (55.0%)
First generation immigrant child with two immigrant parents born outside of the U.S., Europe or Asia	4.3238	4.4721	4.3897	9.5384 (63.6%)	9.5700 (63.8%)	11.1590 (55.8%)
First generation immigrant child with two immigrant parents born in different regions	4.1256	3.9535	4.0594	9.0214 (60.1%)	8.0360 (53.6%)	9.0589 (45.3%)
First generation immigrant child with one parent born in Canada and another born in the U.S. or Europe	4.1717	4.0838	4.2219	9.1853 (61.2%)	8.8345 (58.9%)	10.9527 (54.8%)
First generation immigrant child with one parent born in Canada and another born in Asia	4.3169	4.2691	3.7384	7.8780 (52.5%)	7.6004 (50.7%)	13.2634 (66.3%)
First generation immigrant child with one parent born in Canada and another born outside of the U.S., Europe or Asia	4.5053	4.2366	4.2971	9.1293 (60.9%)	8.7444 (58.3%)	10.6972 (53.5%)

KEY:

a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.

b. The math exams from Cycle 3 are calculated out of 20 questions.

c. The numbers in brackets are the percentage equivalent of each mean score.

Table 6: Frequency showing children's age at immigration

Cycle	Not an immigrant	0-4 years old	5 years old & higher	Total
Cycle 1	21,527[a] (96.3%)[b]	511 (2.3%)	321 (1.4%)	22,359
Cycle 2	19,165 (97.1%)	361 (1.8%)	204 (1.0%)	19,730
Cycle 3	30,883 (97.6%)	511 (1.6%)	243 (0.8%)	31,637

KEY:

a. The first number is the weighted amount using cross-sectional weights for their respective cycle.

b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 7: Mean scores of children's academic performance divided by age at immigration

Age at immigration	Group A			Group B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Not an immigrant	4.1925	4.1488	4.1167	9.1291[a] (60.9%)[c]	8.6830[a] (57.9%)	10.1734[b] (50.9%)
0-4 years old	4.1932	4.3213	4.1778	8.5457 (57.0%)	9.4334 (62.9%)	13.6688 (68.3%)
5 years old & higher	4.1572	4.2357	4.0755	9.8455 (65.6%)	8.9869 (59.9%)	8.9553 (44.8%)

KEY:

a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.

b. The math exams from Cycle 3 are calculated out of 20 questions.

c. The numbers in brackets are the percentage equivalent of each mean score.

Table 8: Frequency showing years since immigration

Cycle	Not an immigrant	0-4 years ago	5 years ago and longer	Total
Cycle 1	21,527[a] (96.3%)[b]	458 (2.0%)	374 (1.7%)	22,359
Cycle 2	19,165 (97.1%)	241 (1.2%)	324 (1.6%)	19,730
Cycle 3	30,885 (97.6%)	401 (1.3%)	349 (1.1%)	31,635

KEY:

a. The first number is the weighted amount using cross-sectional weights for their respective cycle.

b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 9: Mean scores of children's academic performance divided by years since immigration

Age at immigration	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Not an immigrant	4.1925	4.1488	4.1167	9.1291[a] (60.9%)[c]	8.6830[a] (57.9%)	10.1734[b] (50.9%)
0-4 years ago	4.2069	4.5567	4.1214	10.4972 (70.0%)	9.6390 (64.3%)	13.4851 (67.4%)
5 years ago and longer	4.1519	4.1196	4.1681	8.5492 (57.0%)	8.9867 (59.9%)	10.7028 (53.5%)

KEY:
a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 10: Frequency of children by language

Language characteristics	Cycle 1	Cycle 2	Cycle 3
Neither English or French	394[a] (1.8%)[b]	399 (2.0%)	793 (2.5%)
English, French (and other)[c]	1,852 (8.3%)	1,573 (8.0%)	2,484 (7.8%)
English (and other)[d]	15,494 (69.2%)	13,654 (69.1%)	21,875 (69.1%)
French (and other)[e]	4,660 (20.8%)	4,125 (20.9%)	6,503 (20.5%)
Total	22,400	19,751	31,655

KEY:
a. The first number is the weighted amount using cross-sectional weights for their respective cycle.
b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.
c. This category includes children who speak English and French and those who may also speak another language.
d. This category includes children who speak English and those who may also speak another language except for French.
e. This category includes children who speak French and those who may also speak another language except for English.

Table 11: Mean scores of children's academic performance divided by linguistic characteristics

Language(s) spoken by child	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Neither French nor English	4.1134	3.9919	3.6143	9.9844[a] (66.6%)[c]	7.8951[a] (52.6%)	14.3114[b] (71.6%)
English and French	4.3373	4.2777	4.1555	9.2928 (63.0%)	8.6327 (57.6%)	9.9129 (49.6%)
English, French and Other	4.2839	4.2735	4.1405	11.0621 (73.7%)	8.3986 (56.0%)	9.8366 (49.2%)
English Only	4.1686	4.1347	4.1421	8.7551 (58.4%)	8.1177 (54.1%)	9.6261 (48.1%)
English and Other	4.2233	4.3023	4.0707	9.3353 (62.2%)	8.9340 (59.6%)	10.9381 (54.7%)
French Only	4.1685	4.1210	4.0809	10.2701 (68.5%)	10.6777 (71.2%)	12.2751 (61.4%)
French and Other	3.7848	3.7702	3.8064	8.6065 (57.4%)	10.9619 (73.1%)	15.0286 (75.1%)

KEY:

a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.

b. The math exams from Cycle 3 are calculated out of 20 questions.

c. The numbers in brackets are the percentage equivalent of each mean score.

Table 12: Frequency of parental attitude on the importance of good grades

Parental attitudes: importance of good grades	Cycle 1	Cycle 2	Cycle 3
Not important at all	77[a] (1.1%)[b]	71 (1.1%)	90 (1.1%)
Somewhat important	556 (8.2%)	470 (7.1%)	467 (5.8%)
Important	2,323 (34.1%)	2,127 (32.2%)	2,416 (29.8%)
Very Important	3,862 (56.6%)	3,934 (59.6%)	5,136 (63.3%)
Total	6,819	6,602	8,109

KEY:

a. The first number is the weighted amount using cross-sectional weights for their respective cycle.

b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 13: Mean scores of children's academic performance divided by parental attitudes on the importance of children's receipt of good grades

Parental attitudes: importance of children's receipt of good grades	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Not important at all	3.5999	3.8343	3.8107	9.7320 (64.9%)	7.3591 (49.1%)	10.8930 (54.5%)
Somewhat important	3.7682	3.7585	3.7092	8.6365 (57.6%)	8.1351 (54.2%)	8.9050 (44.5%)
Important	4.0728	4.0120	3.9884	9.5355 (63.6%)	8.2993 (55.3%)	9.7675 (48.8%)
Very Important	4.2839	4.2411	4.1933	9.8949 (66.0%)	8.7509 (58.3%)	10.4795 (52.4%)

KEY:
a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 14: Frequency of parents' educational aspirations for their children

Parents' educational aspirations	Cycle 1	Cycle 2	Cycle 3
Primary School	37[a] (0.3%)[b]	53 (0.5%)	39 (0.2%)
High School	709 (5.9%)	754 (7.3%)	1,171 (7.0%)
Community college or trade school	2,191 (18.1%)	8,830 (84.9%)	14,540 (86.5%)
University	9,146 (75.7%)	768 (7.4%)	1,066 (6.3%)
Total	12,083	10,405	16,816

KEY:
a. The first number is the weighted amount using cross-sectional weights for their respective cycle.
b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 15: Mean scores of children's academic performance divided by parents' educational aspirations for their children

Parents' educational aspirations	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Primary School	4.2050	3.9265	3.6351	7.8288[a] (52.2%)[c]	6.9311[a] (46.2%)	9.3424[b] (46.7%)
High School	3.6288	3.5750	3.5693	8.1181 (54.1%)	8.0102 (53.4%)	8.5261 (42.6%)
College or trade school	3.8815	4.2390	4.2025	8.8988 (59.3%)	8.7781 (58.5%)	10.5420 (52.7%)
University	4.3214	3.7754	3.6584	9.2443 (61.6%)	8.1555 (54.4%)	8.5746 (42.9%)

KEY:
a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 16: Frequency of children by gender

Gender of the child	Cycle 1	Cycle 2	Cycle 3
Female	11,125[a] (48.7%)[b]	9,758 (48.7%)	15,573 (48.7%)
Male	11,706 (51.3%)	10,267 (51.2%)	16,390 (51.3%)
Total	22,831	20,025	31,963

KEY:
a. The first number is the weighted amount using cross-sectional weights for their respective cycle.
b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 17: Mean scores of children's academic performance divided by gender

	Group A			Group B		
	Cycle 1	**Cycle 2**	**Cycle 3**	**Cycle 1**	**Cycle 2**	**Cycle 3**
Female	4.3058	4.2461	4.2538	†	8.5885[a] (57.3%)[c]	10.3263[b] (51.6%)
Male	4.0815	4.0621	3.9915	†	8.8027 (58.7%)	10.2121 (51.1%)

KEY:
† Cycle 1 Group B mean scores were not released from Statistics Canada's Research Data Centre (RDC).
a. The math exams from Cycle 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 18: Frequency of children's participation in social activities

Does the child participate in social activities outside of the school environment?	Cycle 1	Cycle 2	Cycle 3
No	13,775[a] (60.3%)[b]	8,253 (41.2%)	10,912 (34.1%)
Yes	9,056 (39.7%)	11,772 (58.8%)	21,051 (65.9%)
Total	22,831	20,025	31,963

KEY:
a. The first number is the weighted amount using cross-sectional weights for their respective cycle.
b. The number in brackets gives the proportion amount of that category in the respective cycle's sample.

Table 19: Mean scores of children's academic performance divided by children's participation in social activities

Does the child participate in social activities outside of the school environment?	Group A			Group B		
	Cycle 1	**Cycle 2**	**Cycle 3**	**Cycle 1**	**Cycle 2**	**Cycle 3**
No	†	4.1813	4.1648	†	8.8105[a] (58.7%)[c]	11.4290[b] (57.1%)
Yes	†	4.1269	4.1184	†	8.1651 (54.4%)	9.7955 (49.0%)

KEY:
† Cycle 1 Group B mean scores were not released from Statistics Canada's Research Data Centre (RDC).
a. The math exams from Cycle 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 20: Frequency of children's ability to get along with others

Does the child get along with others? Does he/she encounter any problems while interacting with others?	Cycle 1	Cycle 2	Cycle 3
Not well at all, constant problems	21[a] (0.2%)[b]	16 (0.2%)	14 (0.1%)
Not too well, frequent problems	121 (0.9%)	48 (0.7%)	119 (0.9%)
Pretty well, occasional problems	1,446 (10.4%)	828 (11.1%)	1,408 (10.6%)
Quite well, hardly any problems	4,068 (29.3%)	2,122 (28.6%)	3,753 (28.2%)
Very well, no problems	8,234 (59.3%)	4,418 (59.5%)	8,033 (60.3%)
Total	13,890	7,432	13,327

KEY:
a. The first number is the weighted amount using cross-sectional weights for their respective cycle.
b. The number in brackets gives the proportion amount of that category in the respective

Table 21: Mean scores of children's ability to get along with others

Does the child get along with others? Does he/she encounter any problems while interacting with others?	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Not well at all, constant problems	3.0445	4.0417	3.5961	11.8406[a] (78.9%)[c]	11.9747[a] (79.8%)	6.6794[b] (33.4%)
Not too well, freq. Problems	3.5068	3.1760	3.2201	8.5723 (57.1%)	7.6233 (50.8%)	9.6374 (48.2%)
Pretty well, occasional problems	3.7705	3.9359	3.8948	8.2002 (54.7%)	8.7070 (58.0%)	11.0370 (55.2%)
Quite well, hardly any problems	4.1135	4.1061	4.0904	9.3171 (62.1%)	9.0115 (60.1%)	11.7723 (58.9%)
Very well, no problems	4.3271	4.3112	4.3104	9.2047 (61.4%)	9.0279 (60.2%)	11.4935 (57.5%)

KEY:
a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.
b. The math exams from Cycle 3 are calculated out of 20 questions.
c. The numbers in brackets are the percentage equivalent of each mean score.

Table 22: Frequency of children's daily interactions with friends

Does the child spend time with his or her friends daily?	Cycle 1	Cycle 2	Cycle 3
No	18,083 [a] (79.2%) [b]	17,552 (87.7%)	28,891 (90.4%)
Yes	4,748 (20.8%)	2,473 (12.4%)	3,072 (9.6%)
Total	22,831	20,025	31,963

KEY:

a. The first number is the weighted amount using cross-sectional weights for their respective cycle.

b. The number in brackets gives the proportion amount of that category in the respective

Table 23: Mean scores of children's daily interactions with friends

Does the child spend time with his or her friends daily?	Model A			Model B		
	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
No	4.2037	4.1349	4.1082	9.1874[a] (61.2%)[c]	8.6414[a] (57.6%)	10.1682[b] (50.8%)
Yes	4.1646	4.2451	4.1978	8.9765 (59.8%)	9.0597 (60.4%)	11.2277 (56.1%)

KEY:

a. The math exams from Cycles 1 and 2 are calculated out of 15 questions.

b. The math exams from Cycle 3 are calculated out of 20 questions.

c. The numbers in brackets are the percentage equivalent of each mean score.

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Table 24: Regression Results for Models in Groups A and B

	Group A			Group B		
	Cycle 1	**Cycle 2**	**Cycle 3**	**Cycle 1**	**Cycle 2**	**Cycle 3**
Observations	5569	1677	1727	2979	1272	951
R-squared	0.1536	0.1318	0.1453	0.1447	0.1456	0.2118
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Independent Variables	**Cycle 1**	**Cycle 2**	**Cycle 3**	**Cycle 1**	**Cycle 2**	**Cycle 3**
Non-immigrant children	†	†	†	†	†	†
Immigrant child born in the U.S. or Europe	0.0984	(dropped)	(dropped)	1.0353	(dropped)	0.0397
Immigrant child born in Asia	(dropped)	0.4943	1.1551*	(dropped)	0.6600	1.1499
Immigrant child born outside of the U.S., Europe or Asia	0.0883	0.5806	0.1466	-0.8435	0.8368	(dropped)
First generation immigrant child with two immigrant parents born in the U.S. or Europe	-0.0515	0.6694*	-0.3970**	0.4058	-1.2110	-1.3576
First generation immigrant child with two immigrant parents born in Asia	-0.0110	-0.2492	0.4318*	1.6704*	1.3156	0.5630
First generation immigrant child with two immigrant parents born outside of the U.S., Europe or Asia	-0.0530	0.1868	0.2974***	0.2282	0.5404	2.8974***
First generation immigrant child with two immigrant parents born in different regions	-0.1367	0.1638	0.0334	-0.8190	-1.2587	-1.2702
First generation immigrant child with one parent born in Canada and another born in the U.S. or Europe	-0.1371**	0.0082	0.1514	-0.2184	-0.3107	1.4331
First generation immigrant child with one parent born in Canada and another born in Asia	-0.1283	0.1086	-0.4106	-2.4958	0.3014	0.4144
First generation immigrant child with one parent born in Canada and another born outside of the U.S., Europe or Asia	0.2224*	0.0523	-0.0354	-0.0120	-0.4406	0.5723
Age of child	0.0088	-0.0876	-0.0145	0.7574*	-0.4439	-0.0369
Years in Canada since immigration: Not applicable (Not an immigrant)	†	†	†	†	†	†
Years in Canada since immigration: 0 to 4 years	(dropped)	-0.5620	(dropped)	(dropped)	-3.6821	(dropped)
Years in Canada since immigration: 5 years and longer	0.0320	-0.6844	0.1451	-2.4763***	(dropped)	-5.0571**

Age at immigration: Not applicable (Not an immigrant)	†	†	†	†	†	†
Age at immigration: 0 to 4 years old	-0.1906	0.2899	-0.4886	2.2168	0.1440	3.0682**
Age at immigration: 5 years old and older	-0.2503	(dropped)	(dropped)	0.5381	5.5843**	(dropped)
Child does not speak French or English	†	†	†	†	†	†
Child speaks both French and English OR French, English and another language	0.5994**	0.3948	0.2903	0.6038	1.4419	-2.8871
Child speaks English OR English and another language	0.5395**	0.4731	0.2920	0.5085	0.9798	-4.4215*
Child speaks French or French and another language	0.4917***	0.3566	0.3771	2.0662	3.8628*	-0.6465
Parental attitudes: importance of children's good grades	0.1710*	0.2887*	0.1982*	0.3292*	0.3270	0.2666
Children who do not participate in social activities outside of the school setting	†	†	†	†	†	†
Children who participate in social activities outside of the school setting	0.1215*	0.0569	0.2578*	0.9038*	0.5611	-0.4059
How well the child gets along with others	0.2072*	0.1607*	0.2079*	0.2800*	0.1507	0.1905
Gender of the child: Female	†	†	†	†	†	†
Gender of the child: Male	-0.2146*	-0.0742	-0.2577*	0.0252	-0.0598	-0.4732
Parents' educational aspirations for their children	0.2861*	-0.0372	-0.0483	0.2638**	-0.0273	-0.6480
Children who do not spend time with their friends daily	†	†	†	†	†	†
Children who spend time with their friends daily	-0.0445	0.0931	0.0015	-0.0360	-0.0036	-0.6658
Socio-economic status (SES) of the child's household	0.0903*	0.2175*	0.1586*	0.6175*	0.7998*	1.9689*
Constant	1.3505*	3.0114*	2.8553*	-1.4870	9.3434*	16.0647*

KEY:
Note: All figures are weighted and dropped variables do not have enough observations for calculating the coefficient.
† ≡ The reference category within the same variable used as the dummy variable.
Significance: (*) ≡ 0.0100 (really significant; about 99% sure that the result is not a product of random distribution.
(**) ≡ 0.0500 (significant; about 95% sure that the result is not a product of random distribution.
(***) ≡ 0.1000 (approaching significance; about 90% sure that the result is not a product of random distribution.