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Registered Indian Children's School Success and Intergenerational Effects of Residential Schooling in Canada

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Abstract

Using the 2006 Aboriginal Peoples Survey, this study investigates factors associated with school success (as perceived by parents) among off-reserve Registered Indian children aged 6 to 14 in Canada. Holding other factors constant, Registered Indian children were more likely to be doing well at school if they were living in households with high income, were living in adequately maintained dwellings, or spoke an Aboriginal language at home. Boys and older children, on the other hand, were less likely to be doing well at school, as were children who were living in larger households, experienced food insecurity, or had parents who attended residential school. Mediation analyses revealed that the negative intergenerational effect of parental residential schooling on children's school success was partially attributable to household characteristics or economic status. Indeed, former residential school attendees were found to be more likely to live in households with a lower income, live in larger households, and report that their family had experienced food insecurity. These characteristics were, in turn, found to be negatively associated with children's school success.

Keywords

Registered Indian, residential school, Canada, education, school success

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Registered Indian Children's School Success and Intergenerational Effects of Residential Schooling in Canada

Despite improvements in the educational profile of Canada's Aboriginal population over the past decades (CESC 2007; Statistics Canada 2008a), large gaps in high school completion rates still exist between the Aboriginal and the total Canadian population. For instance, data from the 2006 Census for the population aged 25 to 64 indicate that 31% of the off-reserve Registered Indian population had not completed high school, twice the rate of 15% observed in the Canadian population (Statistics Canada 2008b). This situation is not unique to Canada. Indigenous students in Australia are also more likely to leave school early compared to non-Indigenous students (Commonwealth of Australia 2002). In the United States, a higher percentage of American Indian/Alaska Native young adults drop out of high school compared to their peers in the overall population (DeVoe and Darling-Churchill 2008).

There is evidence that Aboriginal individuals without a high school diploma face a greater disadvantage in the labour market than their non-Aboriginal counterparts. In a recent report using 2006 Census data, the Canadian Council on Learning (2008) reports that unemployment rates among Aboriginal youth aged 20 to 24 were fourteen percentage points higher for high school dropouts than for graduates. In comparison, unemployment rates among non-Aboriginal youth were only three percentage points higher for high school dropouts than for graduates. Similarly, Hull (2005) notes that Canadian Aboriginal adults with educational credentials had substantially improved employment and income outcomes compared to those without credentials (partial education). Moreover, Hull found evidence that credentials were of greater importance for employment and earnings to the Aboriginal than to the non-Aboriginal population.

Given the considerably lower rates of high school completion among the Aboriginal population relative to the overall Canadian population, there is a need to better understand the factors associated with Aboriginal students' success at school – or lack thereof. Understanding the factors underlying both school success and school difficulties may help improve educational attainment at all levels among the Aboriginal population in Canada and, indeed, elsewhere. As educational success for Aboriginal/Indigenous children is a common theme in several countries, lessons learned from the Canadian context could also provide some directions for research and policies in international contexts.

Dropping out of high school has been described by many researchers as a multifaceted and cumulative process, which is likely to be established early in a child's school career (Astone and McLanahan 1991; Ensminger and Slusarcick 1992; Alexander, Entwistle and Horsey 1997; Garnier, Stein and Jacobs 1997). In other words, rather than being seen as a single event, dropping out of high school is seen more as a process occurring over time and an outcome of a complex combination of student, family, and school experiences. Moreover, paths leading to school success or school difficulties are likely to begin as early as a child's very first years in school.¹

The present study sought to provide insights into some of the factors likely to influence how well Aboriginal students are doing at school, with a focus on the elementary and early high school years. Specifically, using the 2006 Aboriginal Peoples Survey on Children and Youth, the goal of the present study was to investigate the factors associated with perceived school success among Registered Indian children aged 6 to 14, who were living off reserve across Canada. The research question addressed is the following: what are some of the circumstances that lead to lower or higher success at school among off-reserve Registered Indian children?

Defining the Aboriginal population

There are various ways to define the Canadian Aboriginal population. The focus of the present study is (off-reserve) Registered Indian children, that is, children who were reported in the 2006 Aboriginal Peoples Survey on Children and Youth as being Registered or Treaty Indians as defined by the *Indian Act* of Canada. Accordingly, throughout the introduction of this article, Census-based characteristics of the overall Aboriginal population are described using the (off-reserve) Registered Indian population. Other research cited in the introduction may have defined the Aboriginal population differently.

Influences on School Achievement

Research based on the general population shows that educational achievement is influenced by a wide variety of factors associated with students, their families, the schools that they attend, and their communities (see Rumberger 1995 for a review). Moreover, it is important to keep in mind that the various factors influencing educational achievement are likely to act in concert rather than in isolation (Lee and Burkham 2003). We briefly review a number of key factors known to be generally associated with school achievement.

Family and household characteristics. Several family and household characteristics are well-known for their impact on school achievement (Rumberger 1995). Overall, characteristics like parental education, household income, and family structure (single-parent vs. two-parent families) are powerful predictors of school achievement and dropping out. In fact, researchers such as Brady (1996) argue that the difficulties faced by many Aboriginal students may be better explained by disadvantaged socio-economic background than any other factor.

Generally speaking, the Registered Indian population living off reserve shows lower educational attainment and income levels compared to the total Canadian population. According to 2006 Census data for adults aged 25 to 64, Registered Indians were far less likely to have completed a university degree (9%) as compared to the total population (23%). The median income in 2005 for the population aged 15 and over was also lower for Registered Indians (\$17,173) than for the total population (\$25,615). In terms of family structure, data from the 2006 Census show that far fewer Registered Indian children aged 14 and under lived with two parents (46%) as compared to children in the total population (80%) (Statistics Canada 2008b, 2008c).

Housing conditions. Housing conditions are closely related to a family's socio-economic status. Health experts assert that inadequate housing can be associated with a multitude of potential health problems for the dwelling's occupants. For example, crowded living conditions can lead to the transmission of infectious diseases and can increase risk for injuries, mental health problems, family tensions, and violence (Health Canada 1999).

The 2006 Census found that off-reserve Registered Indians were twice as likely as the total Canadian population (7% versus 3%) to live in crowded conditions (defined as one or more people per room). The state of a family's living conditions is also partly determined by the need for major repairs to the home a family is occupying. The 2006 Census showed that off-reserve Registered Indians were twice as likely as the total Canadian population (17% versus 8%) to live in a home in need of major repairs (Statistics Canada 2008d).

The impact of housing conditions on Aboriginal children's school achievement has not been well-researched; however, one can argue that crowded living conditions may represent a challenge in terms of providing children with a quiet place to study. Also, given the relationship

between health and educational outcomes, one may expect inadequate housing conditions to be negatively associated with children's school success.

Nutrition. Eating breakfast has many benefits for children, including providing energy for the morning's activities and helping them to get ready to learn (Turcotte and Zhao 2004). Research has also shown that inadequate nutrition – which may also come from experiencing food insecurity – can have serious impacts, including a decreased ability to concentrate and poor school performance (Wachs 1995).

A study using data from the 1998/99 National Population Health Survey has shown that there was a higher proportion of Aboriginal people² living in food-insecure households compared to the total Canadian population (27% versus 10%) (Che and Chen 2001). In other words, because of a lack of money at least once in the 12 months preceding the survey, proportionally more Aboriginal people worried that there would not be enough to eat, and/or did not eat the variety or quality of food that they wanted, and/or did not have enough to eat. Furthermore, this study showed that even after controlling for factors such as household income or marital status, the odds that Aboriginal people would live in a food-insecure household were about one and a half times those for non-Aboriginal people.

Mobility. Residential moves and transfers to different schools have been argued to be disruptive of family events, which can be related to dropping out of school (Alexander, Entwistle and Horsey 1997), especially for younger children (Havemen, Wolfe and Spaulding 1991). Rumberger and Larson (1998) found that American students who had changed schools between the 8th and 12th grades – even just one time – were less likely to have completed high school, after controlling for student and family background and educational experiences.

Recent Canadian research using administrative data from public schools in British Columbia also demonstrates that mobility is an important factor contributing to school failure in the Aboriginal student population³ (Aman and Ungerleider 2008). Indeed, findings from this research suggest that school changes resulting from family moves were associated with large decreases in Aboriginal students' school completion rates.

Registered Indians living off reserve tend to be more mobile than other Canadians. According to the 2006 Census, 27% of the off-reserve Registered Indian population had moved in the year prior to the census, compared with 14% of the total Canadian population. About 62% of Registered Indians who moved did so within the same community, while 37% of movers changed communities (Statistics Canada 2008b).

Aboriginal languages. For many Aboriginal people, Aboriginal languages are an important part of their identity. These languages reflect distinctive histories, cultures and identities linked to family, community, the land, and traditional knowledge (Norris 2007). The 2006 Census recorded over 60 different Aboriginal languages spoken by First Nations people in Canada (Statistics Canada 2008e). In 2006, about 15% of the off-reserve Registered Indian population said they could speak an Aboriginal language well enough to carry on a conversation (Statistics Canada 2008b).

Some authors argue that learning, acquiring, and demonstrating fluency in an Aboriginal language may contribute to positive self-esteem and community well-being, as well as cultural continuity (Canadian Heritage 2005; Hallett, Chandler and Lalonde 2007; Norris 2007). It is through its impact on self-esteem that fluency in an Aboriginal language is, in turn, thought to be associated with school achievement (Bougie, Wright and Taylor 2003; Wright and Taylor 1995).

Residential schools. The residential school system operated across Canada between 1830 and the 1990s. Residential schools were largely operated by churches in partnership with the federal government (Aboriginal Healing Foundation 2002). It has been stated that, in order to attend Residential Schools, Aboriginal children were removed from their homes, and often taken far from their families and communities. While at school, children were prevented from speaking their own languages and learning about their culture and heritage. It is not uncommon to hear some former students speak about the positive experiences in these institutions; however, many former students suffered physical and sexual abuse (Indian and Northern Affairs Canada 2008).

The last residential school for Aboriginal children in Canada closed in the 1990s but the negative impacts will likely affect many generations of Aboriginal peoples, their children and their communities (Where are the Children 2008; Aboriginal Healing Foundation 2002).

Little research has systematically explored the indirect intergenerational effects of residential schooling on the education outcomes of children and youth whose parents were former residential school attendees. Two recent national studies, however, have started to shed some light on this issue.

The first study, using data from the First Nations Regional Longitudinal Health Survey 2002/03⁴, has found that First Nations youth aged 12 to 17 (who lived in First Nations communities) were more likely to report having learning problems at school, and to report having had to repeat a grade, if one or both of their parents had attended residential school (Assembly of First Nations 2007).

A related finding has also emerged in another recent study using the 2006 Aboriginal Peoples Survey in a sample of off-reserve First Nations children aged 6 to 14. According to these

data, off-reserve First Nations children whose parents (one or both) had attended residential schools were less likely to be doing “very well” or “well” at school compared to children whose parents had not attended residential schools (Bougie 2009).

Parental residential school attendance thus appears to be a contributing factor in Aboriginal children’s experiences at school. To the extent that this finding is replicated in the present study, it would be important to attempt to understand the mechanisms likely at play in the relationship between parental residential school attendance and Aboriginal children’s school success. Specifically, is this negative intergenerational effect attributable to other factors? A more in-depth analysis of the indirect effects of residential schools on today’s Aboriginal children and youth would help us better understand their current experiences, as well as the adversities that they may face (Assembly of First Nations 2007).

The Present Study

Given that many researchers view the path toward dropping out of school as beginning in the early years, there is a need to look at the school experiences and circumstances of children in order to better understand the lower high school completion rates of Aboriginal people in Canada. The goal of this study was to investigate the factors associated with perceived school success among Registered Indian children aged 6 to 14 living off reserve across Canada. Furthermore, should evidence of a negative effect of parental residential school attendance on children’s success at school be found, this study also sought to investigate this relationship in a more in-depth manner in order to gain a better understanding of some of the mechanisms likely at play.

Methodology

Data Source

The data source used in this study was the 2006 Aboriginal Peoples Survey, Children and Youth (6 to 14 years) component. The Aboriginal Peoples Survey (APS) provides an extensive set of data about the lifestyles and living conditions of Métis, Inuit, and off-reserve First Nations adults aged 15 years and over and children aged 6 to 14, living in urban, rural, and northern locations across Canada. The APS is a post-censal survey; that is, a sample of about 60,000 people was selected from adults 15 years and over and children aged 6 to 14 living in private households whose response(s) on their 2006 Census questionnaire indicated that they had Aboriginal origins; and/or identified as North American Indian⁵, Métis, and/or Inuit; and/or had Treaty or Registered Indian status; and/or had Indian Band membership. The 2006 APS covers the Aboriginal population living off reserve in Canada's ten provinces, and all Aboriginal peoples living in the Yukon, Northwest Territories and Nunavut. More detailed information about the survey is available in the "*APS Concepts and Methods Guide*" (Statistics Canada 2009, Catalogue no. 89-637-X — No. 003).

The APS on Children and Youth (6 to 14) – the component that will be the focus of the present study – is a survey which collected data about the child from their parent/guardian. It is therefore important to note that the findings in this study are based on the perceptions and reporting of the parent/guardian responding on behalf of their child. In the majority of cases this person was the parent of the child, either the mother (63%) or the father (16%). To facilitate readability, the term "parent" will be used throughout the article when referring to the person responding on behalf of the child.

Target Population

The focus of this study was children with reported Treaty Indian or Registered Indian status. Only Registered Indian children with reported First Nations, Métis, or Inuit identities (as a single identity or in combination) were included in our target population. The resulting sample size was 4,860 children (2,359 girls and 2,501 boys) between the ages of 6 to 14, representing about 68,475 children with Treaty or Registered Indian status living off reserve⁶ across Canada. In this group of children, about 85% were identified by parents as First Nations (single identity), 11% as Métis (single identity), and 3% as First Nations in combination with Métis identity. Most were reported to be members of an Indian Band or a First Nation (89%).

Registered Indian Status

The 2006 APS asked parents, “Is <child’s name> a Treaty Indian or a Registered Indian as defined by the *Indian Act* of Canada?”

The *Indian Act* sets out certain federal government obligations and regulates the management of Indian reserve lands, Indian moneys and other resources. Registered Indians or “status Indians” are entitled to have their names included on the Indian Register, an official list maintained by the federal government. Certain criteria determine who can be registered as a status Indian. Only Registered Indians are recognized as Indians under the *Indian Act*. Status Indians are entitled to certain rights and benefits under the law.

Generally speaking, Treaty Indians are persons registered under the *Indian Act* and can prove descent from a band that signed a treaty.

For more information, see the Indian and Northern Affairs Canada website at:
http://www.ainc-inac.gc.ca/pr/pub/wf/index_E.html.

Dependent Variable: School Success

Direct or objective measures of school success, such as standardized tests scores or report cards, are not available from the 2006 APS.⁷ The 2006 APS does, however, contain an indicator of children's school success based on parental perceptions. Parents were asked the following question: "Based on your knowledge of (child)'s school work, including report cards, overall, how well is (child) doing at school this year? Would that be... Very well? Well? Average? Poorly? Very poorly?" According to these data, 42% of Registered Indian children were reported to be doing "very well" and 26% were reported to be doing "well" at school. One quarter (25%) were reported to be doing "average" and 5% "poorly" or "very poorly" at school.

A similar school success question based on parents' perceptions is used in Statistics Canada's National Longitudinal Survey of Children and Youth (NLSCY). According to these data, similar perceptions of how children were doing at school were found for all children aged 6 to 14 in Canada.⁸ In the NLSCY, parents were asked to rate how well their child was doing overall at school this year. About 42% of all children in Canada were reported by their parents to be doing "very well", 25% "well", 24% "average", and 4% "poorly" or "very poorly" at school.⁹

Independent Variables

This study sought to investigate the association between off-reserve Registered Indian children's school success (as perceived by parents) and a number of family and household, student, and demographic characteristics. The family and household characteristics that were investigated were as follows: parental education, household income, living arrangements, mobility, parental residential school attendance, and two indicators of housing conditions—household size (as a proxy for crowded living conditions¹⁰) and whether or not the dwelling was in need of repairs (as a measure of adequacy of housing conditions). The student characteristics

that were investigated included children’s use of an Aboriginal language at home and two nutrition related indicators: whether or not the child ate breakfast everyday and whether or not the child experienced being hungry. Table 1 summarizes the descriptive results for all these variables for our sample of off-reserve Registered Indian children.

Table 1
Summary of descriptive results for all independent variables, off-reserve Registered Indian children aged 6 to 14

Variables		
Parental level of education		
	Completed university degree	9%
	College, trade/vocational, or apprenticeship	27%
	Some postsecondary	13%
	High school	21%
	Less than high school	29%
Household income		
	Quintile 5 (highest)	\$80,257 and above
	Quintile 4	\$50,760 to \$80,256
	Quintile 3	\$34,601 to \$50,759
	Quintile 2	\$22,219 to \$34,600
	Quintile 1 (lowest)	\$22,218 and below
Living arrangements		
	Two parent household	58%
	One parent household	42%
Mobility in the previous year		
	Different community	9%
	Different address but same community	15%
	Same address	77%
Parents attended residential school		
	Yes [†]	16%
	No	84%
Household size		
	6 persons or more	26%

	5 persons or less	74%
Dwelling in need of repair	No repair needed	45%
	Minor repairs needed	37%
	Major repairs needed	18%
Aboriginal language use at home	Yes ('some' to 'all' the time)	21%
	No	79%
Eating breakfast everyday	Yes	80%
	No	20%
Experienced being hungry	Yes	12%
	No	88%

Note: All estimates were calculated using sample survey weights and bootstrap weights to obtain the correct variance estimates.

¹ It is important to note that these data are for the parents of off-reserve Registered Indian children between the ages of 6 to 14. As such, these data may not include older individuals whose generation was more likely to have attended residential school, given that the last residential school stopped operating in the 1990s.

Source: Statistics Canada, Aboriginal Peoples Survey 2006, Children and Youth component.

Parental education. Parents were asked about their highest level of education ever completed. Five categories of parental education were created: 1) less than high school; 2) high school; 3) some postsecondary education – that is, some college or university level courses but with no certificate, diploma, or degree; 4) college, trade/vocational or apprenticeship certificate, or university certificate or diploma below a Bachelor's degree; and (5) completed university degree.

Household income. The total household income figures of the off-reserve Registered Indian population aged 6 to 14 were ranked from lowest to highest and then divided into quintiles.

Living arrangements. Two categories were used based on parents' response as to whether their household was a one or two parent household (including step parents, adoptive parents, foster parents, legal guardians, etc.).

Mobility in the previous year. The residential mobility status variable was used. This variable refers to the relationship between a person's usual place of residence on census day and his/her usual place of residence one year earlier. Three categories were created: 1) residing at the same address as the previous year; 2) residing in a different dwelling but in the same community; and (3) residing in a different community.

Parental residential school attendance. Parents were asked if they, and their current partner or spouse, were "ever a student at a federal residential school, or a federal industrial school." Two categories were used: having parents (one or both), who indicated that they were former residential school students, and having parents who were not.

Household size. Parents were asked to indicate how many individuals lived in this household, including themselves and the child. Two categories were created: children living in households with five persons or less and those living in households with six or more persons.

Adequacy of housing conditions. The variable "dwelling in need of repair" was used. This variable refers to whether, in the judgement of the respondent, the dwelling requires any repairs. Two categories were created: children living in adequate housing conditions (i.e., no repair needed, only regular maintenance) and those living in dwellings that needed repairs (minor or major).

Aboriginal language use at home. Parents were asked to indicate the frequency with which their child currently used an Aboriginal language in his/her household. Two categories were created: children who used an Aboriginal language "some of the time," "most of the time,"

or “all the time” at home and those who did not use or who used an Aboriginal language “very seldom” [sic] at home (including children who could not speak nor understand an Aboriginal language).

Eating breakfast. Parents were asked to indicate how often their child had eaten breakfast in the last week. Two categories were created: children, who were reported to eat breakfast everyday, and those who did not eat breakfast everyday.

Food insecurity. Parents were asked whether their child had “ever experienced being hungry because the family had run out of food or money to buy food.” Two categories were used: children who reported to have experienced such food insecurity and those who did not.

Results

Modelling Perceived School Success

The research question addressed in this section is the following: What are the factors associated with off-reserve Registered Indian children’s school success? Logistic regression models were applied for predicting the odds that children did “very well or well” at school (as perceived by parents). Perceived school success was analyzed as the outcome variable predicted by a number of family and household, student, and demographic characteristics.

We first analyzed the effect of each factor on school success individually. Odds ratios for parental education, mobility in the previous year, parent’s sex, and urban vs. rural area of residence did not reach statistical significance. These factors were not included in the full model. Table 2 shows the odds ratios for the full model. Results from this model indicate which factors are significantly associated with doing “very well or well” at school, while holding constant the presence of other factors.¹¹

Table 2

Logistic regression results predicting the odds of doing "very well or well" at school, off-reserve Registered Indian children aged 6 to 14

Factors		Odds ratio
Household income	Quintile 5 (highest)	1.39 *
	Quintile 4	1.20
	Quintile 3	1.14
	Quintile 2	1.15
	Quintile 1 (lowest) †	1.00
Living arrangements	Two parent household	1.10
	One parent household †	1.00
Parents attended residential school	Yes	0.78 *
	No †	1.00
Household size	6 persons or more	0.71 ***
	5 persons or less †	1.00
Dwelling in need of repair	No repair needed	1.22 **
	Repairs needed †	1.00
Aboriginal language use at home	Yes ('some' to 'all' the time)	1.28 *
	No †	1.00
Eating breakfast everyday	Yes	1.16
	No †	1.00
Experienced being hungry	Yes	0.73 **
	No †	1.00
Child's sex	Boy	0.55 ***
	Girl †	
Child's age	11 to 14 years old	0.70 ***
	6 to 10 years old †	

Parent's age	Coded continuous (1=34 or less; 2=35 to 44; 3=45 or more)	0.84 **
Geography	Atlantic †	1.00
	Quebec	0.74
	Ontario	0.73
	Manitoba	0.84
	Saskatchewan	0.95
	Alberta	0.69 *
	British Columbia	0.71
	Territories	0.71
Pseudo R ²		0.04
Number of observations		4,431

Notes: The odds ratio indicates the effect of each factor on perceived school success when all other variables in the model are held constant.

Odds ratios for parental education, mobility in the previous year, parent's sex, and area of residence in the single variable models did not reach statistical significance. These factors were not included in the full model.

The full model is based on 4,341 off-reserve Registered Indian children (representing 60,780 children) for whom there were no missing value on any variables included in the model.

All models were calculated using sample survey weights and bootstrap weights to obtain the correct variance estimates.

† Reference group

* Statistically significant difference from the reference group ($p < .05$)

** Statistically significant difference from the reference group ($p < .01$)

*** Statistically significant difference from the reference group ($p < .001$)

Source: Statistics Canada, Aboriginal Peoples Survey 2006, Children and Youth component.

First, in terms of demographic characteristics, boys and older children were found to be less likely to be doing well at school compared to girls and younger children. All other factors being equal, the odds of doing “very well or well” at school for off-reserve Registered Indian boys were significantly lower than the odds for girls (odds ratio [OR] = 0.6). Similarly, the odds of doing “very well or well” at school for off-reserve Registered Indian children aged 11 to 14 were significantly lower than the odds for children aged 6 to 10 (OR = 0.7).

Household income, housing conditions, and household size were found to be significantly associated with off-reserve Registered Indian children’s school success. The odds of doing “very well or well” at school for children who were living in households at the top income quintile were higher (OR = 1.4) than the odds for children who were at the lowest range. Similarly, the odds of doing “very well or well” at school for children who were living in adequately maintained dwellings (i.e., no repair needed) were higher (OR = 1.2) than the odds for children living in dwellings in need of repairs. The odds of doing “very well or well” at school for children living in larger households (i.e., 6 persons or more) were lower than the odds for children living in smaller households (OR = 0.7).

Experiencing food insecurity was found to be negatively associated with off-reserve Registered Indian children’s school success. The odds of doing “very well or well” at school for children who experienced being hungry were significantly lower than the odds for children who did not (OR = 0.7).

Using an Aboriginal language at home was positively associated with off-reserve Registered Indian children’s school success. The odds of doing “very well or well” at school for children who spoke an Aboriginal language at home were significantly higher than the odds for children who did not or who could not speak an Aboriginal language (OR = 1.3).

Finally, replicating the findings observed in a recent study by Bougie (2009) also using the 2006 APS, parental residential school attendance was found to be negatively associated with how well off-reserve Registered Indian children were doing at school. All other factors being equal, the odds of doing “very well or well” at school for children whose parents attended residential schools were significantly lower than the odds for children whose parents did not attend residential schools (OR = 0.8).

Toward a Better Understanding of the Impact of Residential School Attendance

There appears to be a negative intergenerational effect of residential schools: off-reserve Registered Indian children, whose parents attended residential schools, were less likely to be doing well in school. Given that this finding has begun to emerge in a number of recent studies (Assembly of First Nations 2007; Bougie 2009), there is a need to better understand the relationship between parental residential school attendance and children’s perceived school success. Thus, this section explores the following research question: What are the mechanisms that may underlie this relationship? In other words, is the relationship between parental residential school attendance and children’s school success at least partly attributable to other factors?

The 2006 APS on Children and Youth, because of its focus on the children, does not contain any information on former residential school attendees’ experiences while they were attending these institutions or on the long-term consequences of residential school attendance. The APS did, however, ask parents about their expectations regarding their child’s education. It could be argued that former residential school attendees have developed distrust toward the “mainstream” educational system brought on by negative experiences with residential schools. It

is thus reasonable to suggest that former residential school attendees may not place high importance on their own children attending formal educational institutions.

Parents were asked to indicate how important it was to them that their child graduates from high school and that their child goes on to postsecondary education. We cross-examined these parental expectations by considering whether or not parents attended residential schools. Findings revealed that parents who attended residential schools were as likely as parents who did not attend these institutions to think it “very important” that their child graduates from high school (98% vs. 97%, respectively). Furthermore, parents who attended residential schools were significantly¹² more likely to think it “very important” that their child goes on to postsecondary education (91%) than parents who did not attend these institutions (86%). These results suggest that parental expectations regarding their child’s education do not appear to be a mechanism at play in the negative association between parental residential school attendance and children’s school success. To the contrary, results suggest that parents strongly believe in the importance of education for their children, whether or not they were former residential school attendees.

While the 2006 APS contains limited information on the psychological pathways which could potentially explain the relationship between parental residential school attendance and children’s school success, this survey allows an examination of a number of demographic and socio-economic characteristics of the households in which children are living. We now turn to exploring some of these characteristics, according to whether or not parents were former residential school attendees.

In terms of basic socio-demographic characteristics, parents who had attended residential schools were found to be older than those who did not. For instance, there were significantly more individuals aged 45 and over among parents who had attended (34%) than among those

who had not attended (19%) residential schools. There were also significantly more parents/guardians who were grandparents to the child among those who had attended (14%) than among those who had not attended (4%) residential schools. Parents who had attended residential schools were also more likely to report having other family members who had also attended. For instance, there were significantly more individuals reporting that both their mother and father had been residential school students among parents who had attended (57% for mother and 48% for father) than among those who had not attended (25% for mother and 18% for father) residential schools.

Significant differences in basic socio-economic indicators were also found between former residential school attendees and those who did not attend these institutions. Indeed, the proportion with a completed university degree was significantly lower among parents who had attended (7%) than among those who had not attended (10%) residential schools. Similarly, the proportion with no high school diploma was significantly higher among parents who had attended (36%) than among those who had not attended (28%) residential schools. In terms of income, there were significantly less individuals at the top income quintile among parents who had attended residential schools (14%) than among those who had not (21%).

These observations lend some support to some authors' claims that the problems associated with residential schools exposed Aboriginal children and adolescents to reduced capacity to continue education after leaving the residential school, as well as reduced income as adults (Barnes, Josefowitz and Cole 2006). Parental education and household income, therefore, appear to represent two potential pathways through which the negative intergenerational effect of parental residential school attendance may be passed on to children.

To further investigate the relationship between parental residential school attendance, socio-economic characteristics, and children's perceived school success, we conducted a series of mediation analyses. The goal of these analyses was to find out whether other factors – referred to here as mediators – may explain the relationship between parental residential school attendance and children's school success.

Mediation Analysis

A factor may be considered a mediator to the extent to which it carries the influence of a given independent variable to a given dependent variable. The basic chain of associations involved in mediation is illustrated in Chart 1.

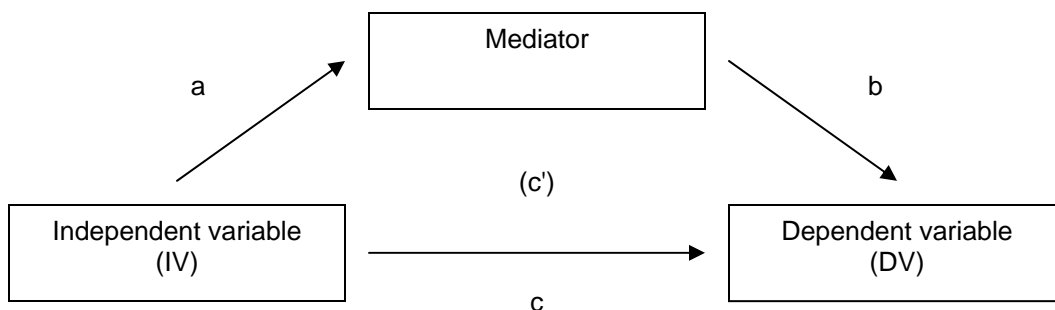


Chart 1. Chain of associations in mediation.

According to Baron and Kenny (1986), a factor is confirmed as a mediator if:

- 1) There is a significant relationship between the IV and the DV in the absence of the mediator (Path c);
- 2) There is a significant relationship between the IV and the mediator (Path a);
- 3) The mediator has a significant unique effect on the DV while controlling for the IV (Path b); and,

- 4) The effect of the IV on the DV is reduced upon the addition of the mediator to the model (Path c').

Each mediation analysis is comprised of three separate regressions: a first regression for testing Path c, a second for testing Path a, and a third for testing both Path b and c'. If the relationship between the IV and the DV goes to zero when the mediator is in the equation, mediation is said to be full or complete. If the relationship is diminished, but not to zero, mediation is said to be partial. These criteria can be used to informally judge whether or not mediation is occurring, but Sobel (1982) presented a method by which mediation may be formally assessed. The mediating effect of a factor is tested as the difference between the relationship of IV and DV with and without consideration of the factor (i.e., comparing Path c and Path c').

The goal of this section was to look for factors that could explain or mediate (even if only partially) the relationship between parental residential school attendance (IV) and children's perceived school success (DV). The following factors were investigated as potential mediators¹³: 1) household income, 2) household size, 3) food insecurity, 4) adequacy of housing conditions, 5) mobility, 6) parental education, 7) living arrangements, and 8) eating breakfast everyday. Eight separate mediation analyses (one for each mediator) were thus conducted.¹⁴ Results from these analyses are presented in Tables 3.1 to 3.8.

Table 3.1

Mediation analysis with Household income (top quintile) as potential mediator

		Coef.
Regression 1	Path c	-0.28 *
Regression 2	Path a	-0.72 ***

Regression 3	Path b	0.29	**
	Path c'	-0.23	*

Sobel's $z = -2.53$, $p < .01$.

Table 3.2

Mediation analysis with Household size (6 persons or more) as potential mediator

		Coef.	
Regression 1	Path c	-0.28	*
Regression 2	Path a	0.56	***
Regression 3	Path b	-0.31	***
	Path c'	-0.24	*

Sobel's $z = -2.78$, $p < .01$.

Table 3.3

Mediation analysis with Food insecurity as potential mediator

		Coef.	
Regression 1	Path c	-0.28	*
Regression 2	Path a	0.61	***
Regression 3	Path b	-0.37	**
	Path c'	-0.28	*

Sobel's $z = -2.44$, $p < .01$.

Table 3.4

Mediation analysis with Housing conditions (no repairs needed) as potential mediator

		Coef.	
Regression 1	Path c	-0.28	*
Regression 2	Path a	-0.22	*
Regression 3	Path b	0.21	**
	Path c'	-0.27	*

Sobel's $z = -1.68$, $p = .09$.

Table 3.5

Mediation analysis with Mobility (same address) as potential mediator

		Coef.
Regression 1	Path c	-0.28 *
Regression 2	Path a	-0.34 **
Regression 3	Path b	0.19 *
	Path c'	-0.27 *

Sobel's $z = -1.60$, $p = .11$.

Table 3.6**Mediation analysis with Parental education (university) as potential mediator**

		Coef.
Regression 1	Path c	-0.28 *
Regression 2	Path a	-0.55 **
Regression 3	Path b	0.07
	Path c'	-0.26 *

Sobel's $z = -0.5$, $p = .62$.

Table 3.7**Mediation analysis with Living arrangements (two parent) as potential mediator**

		Coef.
Regression 1	Path c	-0.28 *
Regression 2	Path a	-0.17
Regression 3	Path b	0.14
	Path c'	-0.27 *

Sobel's $z = -1.22$, $p = .22$.

Table 3.8**Mediation analysis with Eating breakfast everyday as potential mediator**

		Coef.
Regression 1	Path c	-0.28 *
Regression 2	Path a	-0.17
Regression 3	Path b	0.19 *
	Path c'	-0.30 **

Sobel's $z = -1.09$, $p = .27$.

Notes: A factor is confirmed as a mediator if: 1) There is a significant relationship between the IV and the DV in the absence of the mediator (Path c, Regression 1); 2) There is a significant relationship between the IV and the mediator (Path a, Regression 2); 3) The mediator has a significant unique effect on the DV while controlling for the IV (Path b, Regression 3); and, 4) The effect of the IV on the DV is reduced upon the addition of the mediator to the model (Path c', Regression 3 and Sobel's test).

All logistic regressions were calculated using sample survey weights and bootstrap weights to obtain the correct variance estimates.

All models included controls for child' sex and age, parent's age, and geography (not shown).

* $p < .05$; ** $p < .01$; *** $p < .001$.

Source: Statistics Canada, Aboriginal Peoples Survey 2006, Children and Youth component.

Three factors acted as significant mediators in the relationship between parental residential school attendance and children's school success: household income, household size, and food insecurity.

Parental residential school attendance was negatively associated with living in a household at the top income quintile (Path a); and, living in a household at the top income quintile was positively associated with doing "very well or well" at school while controlling for parental residential school attendance (Path b). Household income partially mediated the relation between parental residential school attendance and children's school success (Path c'; Sobel's $z = -2.53$, $p < .01$).

Similarly, parental residential school attendance was positively associated with living in a relatively large household (Path a), and living in a relatively large household was negatively associated with doing "very well or well" at school while controlling for parental residential

school attendance (Path b). Household size partially mediated the relation between parental residential school attendance and children's school success (Path c'; Sobel's $z = -2.78$, $p < .01$).

Finally, parental residential school attendance was positively associated with experiencing food insecurity (Path a), and experiencing food insecurity was negatively associated with doing "very well or well" at school while controlling for parental residential school attendance (Path b). Experiencing food insecurity partially mediated the relation between parental residential school attendance and children's school success (Path c'; Sobel's $z = -2.44$, $p < .05$).¹⁵

Adequacy of housing conditions and mobility were found to be associated with both parental residential school attendance (Path a) and children's school success (Path b); however, these factors did not mediate this relationship (Sobel's tests failed to reach statistical significance).

Parental education was found to be associated with parental residential school attendance (Path a), but not with children's school success (Path b – criterion for mediation not met). Living arrangements and eating breakfast everyday were not associated with parental residential school attendance (Path a – criterion for mediation not met).

Discussion

This study provided insights into some of the factors associated with how well off-reserve Registered Indian children aged 6 to 14 in Canada were doing at school, as perceived by parents. Findings highlight a number of associations between perceived school success and children's family characteristics, housing conditions, nutrition, as well as use of an Aboriginal language. Future research on these topics could provide additional knowledge regarding potentially important areas for educational programs and policies. Additional research should

also be conducted in other contexts to see if the same patterns can be found in other Canadian Aboriginal populations or in indigenous populations in other countries.

When all other variables in the analysis were held constant, boys and older children were found to be less likely to be doing well at school, as compared to girls and younger children. Factors positively associated with off-reserve Registered Indian children's school success included living in households at the highest income range, living in adequately maintained dwellings, and using an Aboriginal language at home. Factors negatively associated with these children's school success included living in relatively large households and having experienced food insecurity. Finally, replicating the findings observed in recent studies, off-reserve Registered Indian children whose parents had attended residential school were found to be less likely to be doing well at school, as compared to children whose parents had not attended these institutions.

These findings reveal that some of the factors that were associated with off-reserve Registered Indian children's school success are similar to those observed in research based on the general population. For instance, gender differences in school achievement are not unique to the children in this study. Such gender differences are commonly observed in the overall population. Recent Canadian data from the National Longitudinal Survey of Children and Youth (NLSCY, 2006/07) for nine year-old children in the overall population showed that parents reported girls to be doing better than boys at school overall (Thomas 2009).

In addition, several family and household characteristics, like household income, are well-known for their relationship with school achievement (see Rumberger 1995 for a review). The study by Thomas (2009) also highlighted that nine year-old Canadian children from low income households were more likely to have parents who reported that they were not doing well

at school than children from higher income households. Inadequate nutrition, which can come from food insecurity, has also been shown to be associated with lower school performance in the general population (Wachs 1995). These similarities notwithstanding, descriptive data presented in this study demonstrate that the Aboriginal population generally fares more poorly than the overall Canadian population with regard to factors such as household income, housing conditions, and food insecurity.

It has been noted in other contexts such as Australia that the factors that negatively influence Indigenous people's education outcomes, such as poorer health and greater poverty, are not entirely specific to them; in other words, other population groups are also affected by these factors. However, many of these circumstances are more commonly experienced in the Indigenous population (Australian Council for Educational Research 2004).

Two factors specific to Registered Indian children were found to be statistically related to how well they were doing at school: the use of an Aboriginal language at home, and whether or not they had parents who had been residential school students. Aboriginal language use is an important element of culture and identity, particularly through its positive contribution to self-esteem, community well-being, and cultural continuity (Canadian Heritage 2005; Hallett, Chandler and Lalonde 2007; Norris 2007). This study provided evidence that Aboriginal language use in the homes of off-reserve Registered Indian children also contributed positively to how well they were doing at school, as perceived by parents.

Mediation analyses revealed that the negative intergenerational effect of parental residential school attendance was, at least in part, attributable to some household and nutrition related characteristics. Indeed, parents who were former residential school attendees were found to be more likely to live in households with a lower income; to live in larger households; and to

report that their family had experienced periods of food insecurity. These characteristics were, in turn, found to be negatively associated with children's success at school (as perceived by parents). Interestingly, parents who were former residential school attendees were found to strongly believe in the importance of education for their children. Parental expectations regarding their child's education were, therefore, not retained as a potential mediator in the negative relationship between parental residential school attendance and children's school success.

Taken together, these results suggest that off-reserve Registered Indian children, whose parents attended residential schools, were less likely to do well at school, and point to three potential pathways, which may partially explain this relationship. Little in-depth analyses have been done thus far regarding the indirect effects of residential schools on today's Aboriginal children and youth; this study helps us better understand some of the mechanisms likely at play in the association between parental residential school attendance and children's success at school. It would be interesting to assess whether such relationship also exists in other Aboriginal or Indigenous populations both in Canada and abroad.

Other pathways could be involved which could not be analyzed in the present study. Indeed, some scholars have discussed a number of emotional and psychological long-term consequences of residential school attendance (Brasfield 2001; Dion Stout and Kipling 2003). Undoubtedly such factors could also help explain the observed negative intergenerational effect of parental residential school attendance; however, the 2006 APS on Children and Youth does not allow such analysis to be undertaken. Future research on these pathways could add to our understanding of the factors involved in the association between parental residential school attendance and children's success at school.

Future research could also further explore whether more or less recent parental residential schooling experiences have a different relationship to children's school outcomes. The ages of the parents in this study range to a large extent, some being in their twenties and some in their sixties. This would mean that there could be parents in the sample who attended residential schools in the mid 1960s, as well as some who would have attended in the mid-1980s, possibly with different residential schooling experiences.

Limitations

Limitations to the present study include the subjective nature of the school success measure that was used. Objective measures of educational achievement, such as standardized tests scores or actual report cards, are not available from the 2006 APS and, therefore, could not be considered in this analysis. Different results than those observed in the present study could be obtained using more objective measures of school achievement. Future data collection efforts related to education should try to include more objective assessments of children's educational achievement.

It is also important to emphasize that the direction of the relationship between perceived school success and the factors under investigation in the present study is difficult to determine. Results are best interpreted as highlighting correlations between variables. Furthermore, school achievement is influenced by students' experiences over many years, whereas the APS captures these experiences as reported at a single point in time. For this reason, the cumulative effect of specific factors on how well off-reserve Registered Indian children were doing at school could not be analysed.

Finally, the 2006 APS on Children and Youth did not survey the on-reserve population. Also, the APS did not collect data on the schools that the children were attending. The lack of

school-level or institution-based data (such as curriculum, program design, classroom structure and climate, size of the Aboriginal student population within the school, etc.), as well as the lack of data for the Aboriginal population living on reserve, prevented us to include such contextual factors into the analysis. Future research on these topics could provide important additional knowledge on other factors associated with how well Aboriginal/Indigenous children are doing at school both in the Canadian and international contexts. While specific policies and programs aimed at improving success would undoubtedly differ in such different contexts, similarities in relationships resulting from similar experiences with colonization would be interesting to study further.

Conclusion

Even though the educational profile of Aboriginal people in Canada has generally improved over the past decades, their rates of high school completion continue to be lower than that of the total population. This study looked at the school success and circumstances of off-reserve Registered Indian children aged 6 to 14 and provided insights into some factors associated with their educational outcomes. Further research on the circumstances leading to higher or lower school success in Aboriginal/Indigenous populations is necessary to gain a better understanding of their lower educational profile, as well as inform potentially important areas for improved educational programs and policies.

Endnotes

¹ Recent Canadian data from the National Longitudinal Survey of Children and Youth (NLSCY, 2006/07) showed that school readiness indicators at the age of 5 were associated with school achievement four years later (Thomas 2009).

² Aboriginal status was based on responses to NPHS questions on race (or colour) and the ethnic (or cultural) groups with which respondents identified. Those who indicated Native or Aboriginal peoples of North America, such as North American Indian, Métis, Inuit or Eskimo, were considered to be Aboriginal persons. The NPHS includes only Aboriginal people living off reserve.

³ In this research, the term “Aboriginal” refers to students who have self-identified as being of Aboriginal ancestry on the annual British Columbia Ministry of Education student data collection form. These students may include First Nations, Status or non-Status Indians, Métis, or Inuit.

⁴ The 2002/03 First Nations RLHS sample was designed to represent the First Nations population living in First Nations communities in all provinces and territories except Nunavut.

⁵ In the Census and the APS, people identified as “North American Indian”; however, the term “First Nations” is used throughout this article.

⁶ The on-reserve population was not surveyed in the 2006 APS. Please consult the “*APS Concepts and Methods Guide*” (Statistics Canada 2009, Catalogue no. 89-637-X — No. 003) for more detailed information about the survey.

⁷ This issue is not unique to the APS. Because the practices, usages, and capacity regarding the collection of Aboriginal education data vary widely across jurisdictions, there is also a dearth of national-level data regarding the school achievement of Aboriginal children in Canada.

⁸ Data from the National Longitudinal Survey of Children and Youth (NLSCY, Cycle 4, 2000/01) were used. Comparable data for all children in Canada aged 6 to 14 are not available for 2006. The target population of the NLSCY comprises the non-institutionalized civilian population (aged 0 to 11 at the time of their selection) in Canada's ten provinces, which, unlike the Aboriginal Peoples Survey, does not include children from the territories. The NLSCY excludes children living on Indian reserves or Crown lands, residents of institutions, full-time members of the Canadian Armed Forces, and residents of some remote regions.

⁹ A recent report (Thomas 2009) indicates that this parent report measure is consistent with more objective test results. The report, based on the National Longitudinal Survey of Children and Youth (NLSCY, 2006/07) for 9-year-old children, looked at parent response to a question about how well their children were doing in school in mathematics, in combination with scores from an objective mathematics test that was administered to these children as well. Findings indicate that higher mathematics achievement was associated with parent reports that the child was doing well in mathematics. This pattern appeared for boys and girls and for children from both lower and higher income households. The cultural reliability of these observations remains to be verified in the Aboriginal population.

¹⁰ 'Crowding' is defined as more than one person per room. Crowding is thus derived by dividing the number of people in the dwelling by the number of rooms in the dwelling. The 2006 APS only asks about the number of people living in the dwelling; it does not ask about the number of rooms. It is therefore not possible to derive an indicator of crowded living conditions strictly with the 2006 APS.

¹¹ Also included in the full model were controls for parents' age and geography. Older parents were found to be less likely to report that their child was doing "very well or well" at school. As

compared to the Atlantic region, parents in Alberta were found to be less likely to report that their child was doing 'very well or well' at school.

¹² In this study, differences were considered to be statistically significant if the 95% confidence intervals around the bootstrapped estimates did not overlap.

¹³ Even though some of these factors were not found to have a significant unique effect on children's school success in the regressions presented in the previous section, they could still play a role as mediators in the relationship between parental residential school attendance and children's school success.

¹⁴ All regressions controlled for child's gender and age, parent's age, as well as geography.

¹⁵ Using the informal criteria proposed by Baron and Kenny (1986), one may conclude that mediation has not occurred because the coefficients associated with path c and path c' appear unchanged. However, the Sobel test indicates the presence of a significant mediation effect. See Holmbeck (2002) for a discussion of the importance of formally probing mediational effects using the Sobel's equation.

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