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Educational Outcomes of Students Funded by the Department of Indian and Northern Affairs Canada: Illustration of a Longitudinal Assessment with Potential Application to Policy Research

*Annette Vermaeten, Mary Jane Norris and
Marion Buchmeier¹*

Introduction

Education continues to be a critical issue for Aboriginal policy research. The gap in educational attainment between Aboriginal people and other Canadians has been well documented by both researchers and governments. For example, in an April 2000 report, the Auditor General of Canada noted this unacceptable discrepancy in educational attainment: it would take approximately twenty-three years to close the gap between First Nation students and other Canadian students and to reach parity in high school completion (Canada 2000, section 4.44). While Canada is one of the highest ranked countries on the United Nations Human Development Index, the First Nations population would rank only 48th, and the on-reserve population would rank 79th (Beavon and Cooke 2003, 208–209). A major component of this differential is the level of educational attainment of the First Nation population in relation to that of the Canadian population in general, which has one of the highest post-secondary graduation rates among world nations.

Current statistics on the educational progress of Aboriginal students are limited. While they provide a cross-sectional view of educational outcomes, they do not allow for a longitudinal perspective, which could yield a better understanding of how students fare throughout their schooling. This chapter explores the application of a new tracing methodology to Indian and Northern

Affairs Canada (INAC) administrative data on the educational outcomes of First Nation students who are funded by the department.² While still preliminary and ongoing in its development, initial results to this point suggest that this is a promising approach from the perspective of policy research and development as it yields better information and understanding about the patterns of educational achievement throughout a student's years (from kindergarten through the end of high school, as well as post-secondary progress).

Before illustrating the results of the tracing methodology, this paper gives a brief overview on the state of Aboriginal/First Nation education followed by specific consideration of the INAC-funded First Nation student populations, whose files are maintained as administrative information within the department. A brief profile of this study population is provided with respect to their selected demographic, geographic, and educational characteristics (including the different types of schools attended). The next section presents the approach and application used in tracing student cohorts, along with the limitations currently inherent in the data. The different types of cohort-based measures and indicators that can be obtained with this tracing approach over the elementary through secondary periods of schooling—such as rates of retention, promotion and graduation—are illustrated with selected examples and rates, along with the kind of research and policy-related questions that these measures could potentially address. The paper concludes with a brief discussion of future developments related to the tracing of student cohorts, the current data limitations and the potential of this approach to better inform policy research in the area of First Nation education.

The State of First Nation Education

The Educational Gap

The achievement gaps between First Nation and other Canadian students documented in the Auditor General's report of April 2000 are significant. While the educational outcomes of Aboriginal people, including First Nations and Inuit, have improved, they remain well below those of the total Canadian population. For example, according to the 2001 Census, 51% of the Registered Indian population have less than a high school graduation certificate as opposed to 31% of Canadians; additionally, only 26% of Registered Indian individuals hold a post-secondary certificate/degree/diploma, compared to 41% of the Canadian working-age population. While overall comparisons of educational attainment levels between Aboriginal and non-Aboriginal populations could be misleading, since Registered Indian populations have a much younger age structure, controlling for age provides a more accurate comparison of differences. In 2001, only 5% of the

Registered Indian population aged 25 to 44 were university graduates compared with 22% of the total Canadian population. In that same age group, 38% of the Registered Indian population had not graduated from high school compared with 18% in the total Canadian population (Statistics Canada 2001).

The graduation rates for post-secondary education are lower for Aboriginal people in comparison with the rest of the country. In 1996, only 6% of the Aboriginal population aged 25 to 54 were university graduates compared with 21% of the non-Aboriginal population. While the post-secondary graduation rates have dramatically improved from 1986 to 1996 for Aboriginal persons, continued growth in educational attainment across Canada has led to pan-Canadian university graduation rates that are still more than double the university graduation rates of Aboriginal persons (Statistics Canada 2000, 99).

According to the most recent Census of Canada (2001), the proportion of Registered Indian population with “some post-secondary” education, that is with *or* without a post-secondary certificate, diploma or degree, is 40% compared to 55 % for the Canadian population as a whole. In 2001, the proportion of Registered Indians *with* a post-secondary degree, certificate, or diploma was 26%, an increase from 20% in 1996. These trends suggest that there has been increased educational attainment. However, these trends could also reflect a compositional effect due to the inclusion of a larger population of previously non-registered individuals to the Indian Register (now entitled for benefits under the *Indian Act*).³

The Knowledge-Based Economy and Educational Outcomes

The knowledge-based economy of the twenty-first century demands that employees have a post-secondary education now more than ever before. The Conference Board of Canada estimates that almost half of all employees will require post-secondary education in the coming years. Given the still considerable gap in educational achievement between Aboriginal and non-Aboriginal Canadians, and the added factor that over half the Registered Indian population is under the age of 25, there is growing pressure on policy-makers to improve the educational outcomes that translate into better employment opportunities in a labour market that demands higher education.

Table 1: The state of First Nation education (Registered Indian) in Canada, 1996 and 2001

Selected indicators of educational achievement	Canada							
	Registered Indian on-reserve		Registered Indian off-reserve		Registered Indian total population		All Canadians	
	1996	2001	1996	2001	1996	2001	1996	2001
Population, age 15 and older, with less than a high school graduation certificate ¹	63	59	49	45	56	51	35	31
Population with a secondary school graduation certificate, but no post-secondary education ²	6	7	9	10	7	9	14	14
Population with a post-secondary certificate/diploma/degree ³	18	24	22	29	20	26	35	41

Note: Significant education gaps exist between First Nation students and other Canadians.

Sources:

1. 1996 and 2001 Censuses.
2. 1996 and 2001 Censuses; Total population 15+ including those still in school.
3. 1996 and 2001 Censuses; Total population 15+ including those still in school.

Educational and Labour Force Knowledge Requirements

In the knowledge economy of the twenty-first century, elementary/secondary education is no longer the basic education required to participate in the labour market. Post-secondary education has become a prerequisite to many new jobs being created in the economy. Recent research has indicated that completion of any level of post-secondary education has an even greater impact on employment for the Aboriginal population than for the general population. The higher the level of education, the lower the unemployment rate; statistics clearly demonstrate that Aboriginal people with post-secondary education are more likely to be employed. The unemployment rate for Aboriginal people without a high school diploma is 40%, whereas with a college education the unemployment rate is 20% and the unemployment rate with a university degree is 9%. For the non-Aboriginal population, the unemployment rate is 20% without a high school diploma, 9% with a college diploma, and 5% with a university degree (Hull 2000; Tait 1999, 6–10). One of the main incentives for an individual to complete post-secondary education is the ability to get a job (Donald 1998), as is clearly demonstrated by the statistics for Registered Indians who are more likely to be employed if they have some post-secondary education.

Lifetime Costs of Education Outcomes

According to the 1996 Census, the average individual income among Registered Indians aged 25 to 44 with a high school certificate was approximately \$19,000 compared to \$33,000 with a university degree. Furthermore, any post-secondary education (regardless of graduation) increases employment income as a percentage of total income (other income is mostly government transfers). Registered Indians whose highest level of attainment was high school completion received approximately 79% of income from employment, while those with any post-secondary education received approximately 89% of their income from employment. This translates into approximately \$3,990 annually in government transfers for a Registered Indian with a secondary diploma compared to \$2,300 for a Registered Indian with any post-secondary education.⁴

A recent study by Eric Howe (2002) on the impact of education on life income considers the returns on education for First Nation people, specifically Registered Indians, for different educational outcomes, including post-secondary levels and secondary completion. (The analysis does not take into account residence by on- and off-reserve). It is also in keeping with other research that has analyzed Aboriginal education and income, particularly the point that there is a greater return to higher education for Aboriginal women than for Aboriginal men. The paper highlights, in particular, the extraordinary return to education achieved by First Nation people in Saskatchewan:

An Aboriginal dropout lives an economically marginalised life in which the male earns only a little more than a third of a million dollars, and the female earns less than 90 thousand dollars. That is lifetime income! If however they persist through university or technical school, they receive up to fourteen times more! . . . These amounts provide an extraordinary incentive for Saskatchewan's Aboriginal people to seek education. It is predicted that Saskatchewan Aboriginal people will catch up to the average level of education of the non-Aboriginal population during the 21st century. (Howe 2002)

Howe's analysis points to the importance of funding educational programs that will increase retention in schools, enhance employment opportunities and increase success rates for Aboriginal people. This study reinforces the lifetime consequences of educational outcomes, consequences that are far reaching for the individual, society and the economy:

Income foregone to an individual represents a loss to society both in terms of what the individual would have produced to earn that income, and also the expenditure on social assistance programs. The half million dollars that a young Aboriginal man wastes by dropping

out of high school is a loss to him, but it is also a loss to society. When a young Aboriginal woman drops out of school, society's loss of the value of what she would have produced is great, but probably less than the resulting social assistance payments. It would be better to have programs which would keep him and her in school. (Howe 2002)

Despite the clear lifetime benefits of education, there are specific problems encountered by First Nation people that could further decrease post-secondary education participation rates.⁵ These include challenges faced by single mothers and other women attending post-secondary institutions, First Nation students that are often older than other students, and the general socioeconomic profile of First Nation students that poses additional barriers. The challenge inherent within good education policy programming is to target the specific circumstances of First Nation students attending post-secondary institutions in order to increase their educational achievements within the knowledge-based economy.

Profile of INAC-Funded First Nation Students

INAC Administrative Databases on Education

The Nominal Roll (NR) is an annually updated database that records the number of students funded by INAC and attending elementary and/or secondary programs at First Nation, provincial, private and federal schools. The objective of INAC's Elementary/Secondary Education program is to provide education programs and services for eligible students at the elementary and secondary levels, comparable to those provided by the province in which the reserve is located. The Nominal Roll Census Report is based on a Census date of September 30 for the current school year. INAC provides funding to administrating organizations for the provision of elementary/secondary education to eligible students, Registered Indians residing on-reserve, and Inuit.

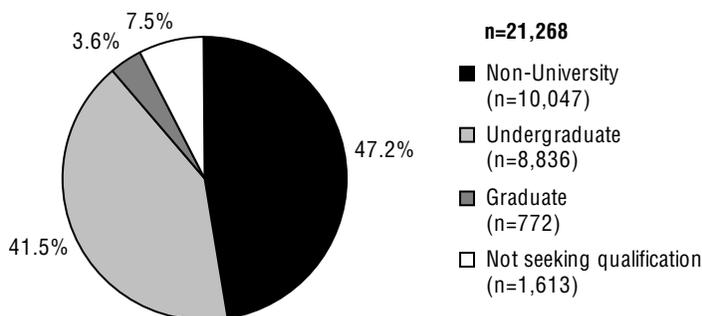
The objective of INAC's Post-Secondary Education Program is to support the increased participation and success of First Nation and Inuit students in recognized post-secondary education programs, thereby improving participants employability. The Post-Secondary Education (PSE) database records the number of students who are funded for post-secondary education studies. This is a database of all the students enrolled in post-secondary institutions that are funded by INAC through the Post-Secondary Education program, and is supported by the student's transcripts and record in the Indian Register (or similar administrative database for Inuit students).

First Nations, and other administrating organizations, provide annual reports to INAC regions (a national roll-up database of regional reporting). The First Nations National Reporting Guide requires two reports to be provided to the INAC regional offices: (1) the register of post-secondary students, which lists all students receiving post-secondary funding on November 1st; and (2) a register of post-secondary graduates along with a summary total of post-secondary funded students, which includes detailed information on all students who have graduated and a summary total of the actual post-secondary students funded for the past year.

Demographic Characteristics

INAC is responsible for providing funding for on-reserve students for elementary/secondary programs and services. From 1991–92 to 2000–01, the enrolment of INAC-funded students in elementary and secondary schools increased from 96,594 to more than 119,000—of these totals, approximately 67% were under the age of 14 and attending primary schools. The First Nation and Inuit populations are very young and growing at more than double the growth rate of all Canadians. This demographic reality means that an increasing number of young First Nation and Inuit people will require the workforce skills necessary for the modern knowledge-based economy. Canada's colleges and other non-university post-secondary institutions are the primary avenue for young people to gain these skills. Almost half of INAC-funded students in post-secondary enrolment chose to attend non-university programs in 2001–02 (Figure 1).

Figure 1: Post-secondary enrolment of INAC-funded students, Canada, 2001–02



Source: INAC Post-Secondary Education System.

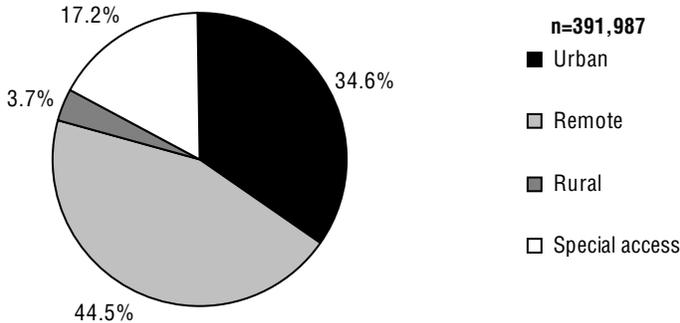
In 2001–02, there were approximately 3,700 INAC-funded graduates, and the majority of these graduating students were from non-university institutions. In 1998–99, 43% of INAC-funded students were over the age of 30 compared with 2% of all Canadians in post-secondary education. This is consistent with census data: First Nation students, on average, are older and more likely to pursue education as a mature student. The financial requirements of Registered Indian students may not be met within other sources of financing. For individuals with less economic resources, financing is a major consideration when deciding to pursue higher education.

The socioeconomic characteristics of First Nations and Inuit peoples pose greater challenges than the socioeconomic traits of other Canadians who may want to pursue a post-secondary education. According to the 2001 Census, the Registered Indian unemployment rate is approximately 23% compared to 7% for all Canadians. In addition, 28% of Aboriginal families are lone-female parent families, while only 12% of non-Aboriginal families are lone-female parent families (2001 Census⁶). The INAC Post-Secondary Education program attempts to address these and other systemic barriers. For instance, First Nation women (with children) face increased barriers to accessing post-secondary education, such as a requirement for daycare, housing, transportation and increased financial support or counselling. Over 67% of INAC-funded students in 2001–02 were women. Without the PSE program, fewer Registered Indian and Inuit women would have the opportunity to attend post-secondary institutions.

Geographic Characteristics

The current information on geographic characteristics of INAC-funded students provides only a limited overview since the data solely covers on-reserve students and there are no linkages to provincial geography. Furthermore, it is not possible to trace post-secondary students by residency since these students live in a variety of residences throughout the course of a given school year and the data are not captured. It is, however, an important consideration as residency—in terms of remote locations or near urban areas, hence access to special services—is likely to be an important consideration in a student's education. With respect to the Registered Indian population in general, of the 392,000 living on-reserve in the year 2000, 17% lived in special access areas—that is, having no year-round road access to a service centre—and 45% lived in remote areas, which are located more than 350 km from the nearest service centre having year-round access (Figure 2).

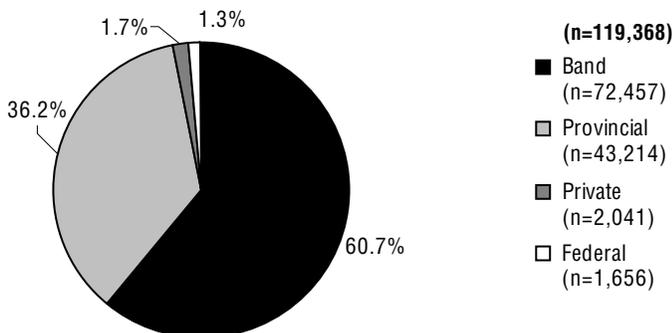
Figure 2: Geographic distribution of Registered Indians on-reserve, Canada, December 31, 2000



Source: INAC Band Classification Manual.

School Types

In 2001–02, of the 119,400 students on the Nominal Roll attending elementary and secondary schools, 61% of students were attending band-operated schools, 36% provincial schools off-reserve, 1.7% private schools off-reserve, and 1.3% federal schools. There are presently 485 schools on-reserve and all but 7 are under First Nation administration and management. Currently there are four different school types that INAC-funded students are attending: provincial, federal, private, and band-operated or First Nation schools (Figure 3). A provincial school is administered by the province (or school board); a federal school is jointly administered by First Nations and INAC (there are only 7 of these schools nationally); a private school is administered by private organizations; and a band-operated or First Nation school is administered by a First Nation in which the curriculum may be determined by the First Nation, as long as it is reasonably comparable with the provincial curriculum (i.e., it enables students to transfer within school systems in the province without academic disadvantage).

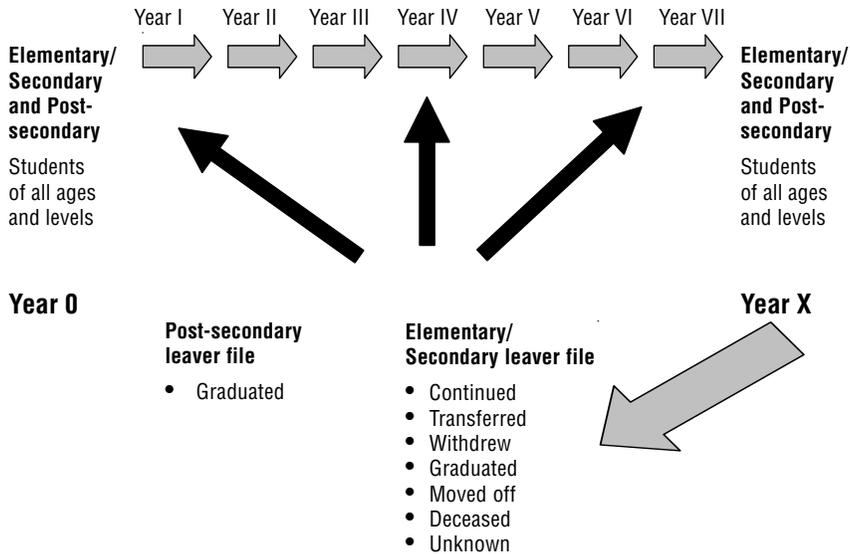
Figure 3: Canada—elementary/secondary school, Nominal Roll 2001–02

Source: INAC Nominal Roll.

Tracing Methodology

The tracing methodology was developed to monitor the activity of a cohort within the NR or PSE over time in order to measure their achievement (Figure 4). A cohort is simply a predefined group of students sharing a defined set of characteristics. For the NR, these tracing characteristics include starting age, grade, gender, year, band of financial responsibility, status and special education. For the PSE database, these characteristics include age, gender, region, band of financial responsibility, institution, college versus university, and part-time versus full-time status.

INAC collects administrative data on all students funded by the department within the elementary/secondary Nominal Roll (NR) and the Post-Secondary Education (PSE) databases. Leaver files are maintained on the elementary/secondary NR. These files record students who leave the NR for several different reasons, including withdrawals, transfers to other schools, moves off-reserve, deaths and graduation. Drop-out and graduation rates are developed from this data. NR and PSE are independent databases and are not linked. PSE graduation files record only graduates, and do not provide any other reasons for students who leave the database. Furthermore, these databases only maintain information on students that are funded by INAC; it is not possible to determine the outcomes of students after they are no longer being funded by INAC even though students may be continuing their education off-reserve and within the provincial system, or in the case of post-secondary education, Registered Indian students supporting themselves to attend post-secondary education (i.e., not funded through INAC's PSE program).

Figure 4: Cohort tracing model

Possible Outputs

The tracing tool measures three standard outcome measures for educational achievement:

1. retention rates—the percentage of students within a defined cohort continuing their education the following school year;
2. progression rates—the percentage of students within a defined cohort that move to the next grade (applicable to NR tracing only); and
3. graduation rates—the percentage of students within a defined cohort in secondary school or college/university that have graduated from their programs within a given school year.

Limitations Associated with the Data

Among the limitations that have been identified with the current tracing tool is the fact that the INAC elementary/secondary NR and the PSE databases are not linked with each other, thereby making it impossible to trace an INAC-funded student throughout his or her entire academic career. Furthermore, while retention, promotion and graduation rates are the three standard outputs generated by the tracing tool for the elementary/secondary student population, only graduation and retention rates can be calculated by the tool for the post-secondary students; the tracing tool is unable to provide

promotion rates for post-secondary students. The leaver file in the NR database records various reasons for leaving (i.e., transfers, withdrawals, moves and deaths). However, in the PSE database only graduates are recorded and information on other reasons for leaving are not collected. Collecting this type of information could prove to be useful in understanding reasons why INAC-funded students do not complete post-secondary education, such as employment, financing, or family reasons. This leads to a third limitation: application of the tracing tool is currently restricted to the information obtained from reporting requirements. Including additional data such as funding, attendance and other reasons for leaving to the reporting requirements could increase the potential of the tracing tool.

Another limitation is the quality of data collected within the leaver files for both NR and PSE. Administrating organizations for these programs provide reports to INAC regional offices, including leaver file data. Significant effort is used to ensure the consistency, accuracy and timeliness of this data. Nevertheless, it is recognized that this information is only as accurate as the quality of the reports received.

Finally, one significant shortcoming that limits the possibility of providing robust performance indicators is that information is only collected on INAC-funded students. For the elementary/secondary education program (NR), when INAC-funded students move off-reserve, the outcomes of these students are no longer captured in the NR database. If a student were to move off-reserve (and therefore no longer be captured under the NR database, it would not be known whether or not the student continued in a provincial school (living off-reserve) or if they dropped out of school entirely. In other words, the tracing tool may report these students as having dropped out, when in fact they may simply have moved off-reserve and are continuing education in a provincial school. Migration (between on- and off-reserve) is a significant factor and likely skews all rate calculations, including graduation and drop-out rates. The tracing tool still suffers from a lack of information concerning the students who disappear from the NR and the PSE databases. In order to provide more robust education indicators, it is essential that the tracing methodology be further enhanced. The tracing tool is able to provide retention, progression and graduation rates of students for the period that they are funded by INAC. But, the next and crucial step in providing robust indicators is to ensure that INAC and provincial education data are shared in order for these rates to accurately reflect the educational outcome of INAC-funded students as they move between on-and off-reserve (migration rates are significant).

Similarly, in the case of post-secondary education students, only students who are supported by the Post-Secondary Education (PSE) program appear on the PSE database. First Nation students supporting themselves to attend post-secondary education are not captured in this database. Consequently, a

student may be funded by their First Nation for post-secondary students for a given year and in subsequent years the student may be financing their post-secondary studies through different avenues (i.e., they are not receiving funding from their First Nation). The student tracing tool may indicate that these students are not continuing or graduating, when in fact they may be continuing their courses, but are not being captured within the PSE database.

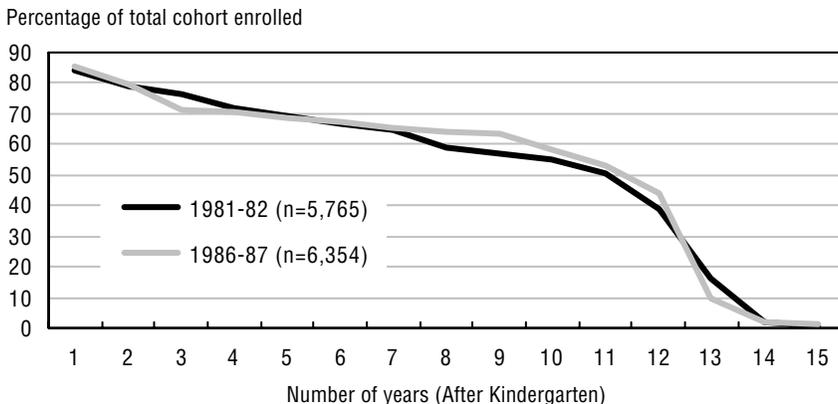
Illustration of Tracing Measures and Indicators

The discussion in this section illustrates, with examples, the various analyses of educational outcomes that are possible using this tracing methodology from a longitudinal perspective, and their possible applications to areas and questions related to policy research on First Nation and Inuit education. These examples include analyses broken down by different variables (Grade Levels, Grade Cohorts, Student Gender, Age Group, School/Institution Type, and Regions), and give some idea of how period and cohort effects could be considered in assessing educational outcomes over time—thus providing further insight into the processes underlying current levels of educational attainment. It should be emphasized that these data findings are only preliminary, given the limitations noted earlier, and are intended solely to illustrate the types of analyses that would be possible. For the purpose of illustration, three sets of indicators are examined: retention rates, promotion rates and graduation rates.

Retention Rates

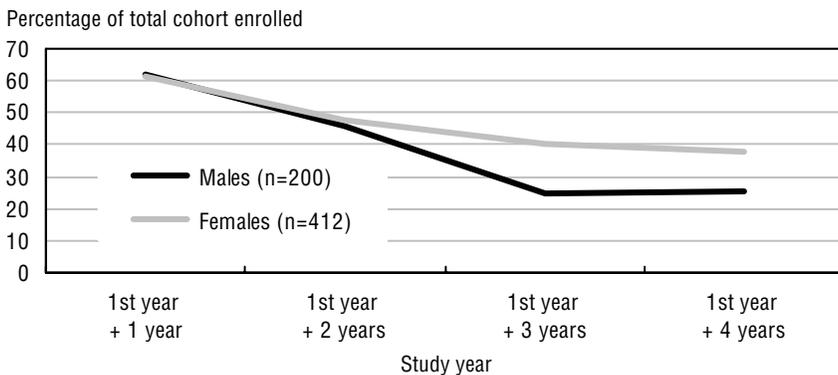
Figure 5 shows the annual retention rates of INAC-funded students in primary school, beginning in kindergarten, for all regions. The solid line is 1981–82 and the broken line is 1986–87. Over the course of time the general trends appear to be the same. Retention rates during primary school years have remained steady. However, the retention rates in high school years have increased slightly. Despite the fact that general rates hover around 50% in upper high school years (Grades 11 and 12), retention rates are improving. The cohort beginning kindergarten in 1986–87 (6,354 students) retained approximately 44% of students until Grade 12; the 1981–82 cohort (5,765 students) retained approximately 38% of students until Grade 12. This may possibly be an indication that INAC-funded students are continuing longer within the educational system.

Figure 5: Cumulative retention rates for two cohorts, 1981–82 and 1986–87, Canada (INAC-funded students)



Source: INAC Nominal Roll.

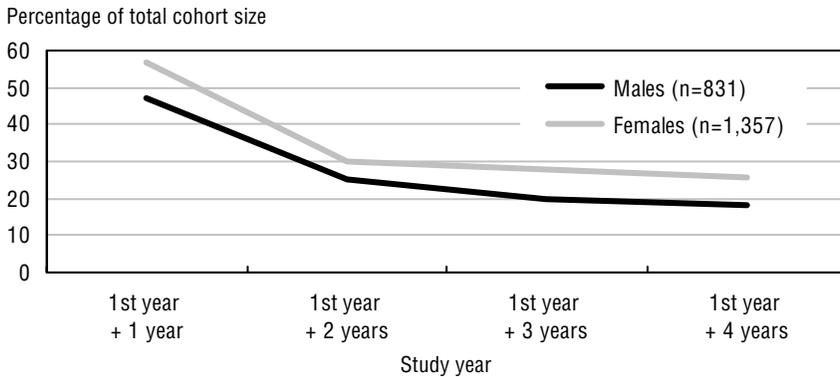
Figure 6: Annual retention rates by gender for students enrolled in a three-year university program, cohort 1997–98, Canada (INAC-funded students)



Source: INAC Post-Secondary Education System.

Figure 6 represents the retention rates of full- and part-time INAC-funded students in a three-year university program. The three-year program was used since the four-year program was still underway—the majority of students in university are enrolled in four-year programs and the Student Tracing tool is not able to capture reliable data prior to 1997–98. The retention rates for females are higher than for males in university; this helps to account for the fact that the graduation rates are also higher for women (as previously mentioned). Is it possible that women are pursuing more part-time studies than men, therefore continuing their studies longer? Or are women more intrinsically motivated to pursue education?

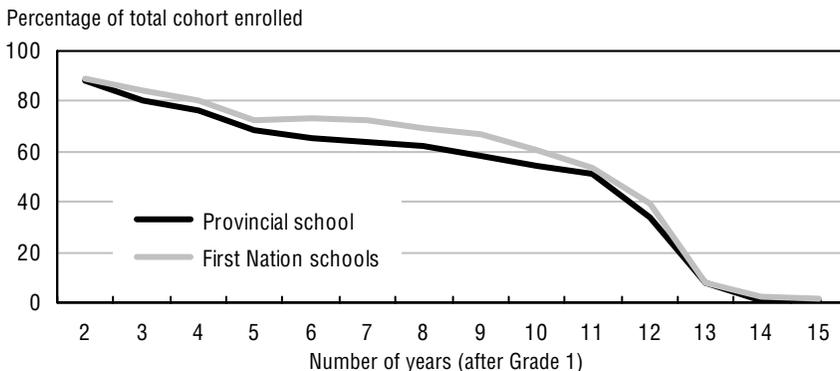
Figure 7: Annual retention rates by gender for students starting in level one of a two-year college program, for cohort 1997–98, Canada (INAC-funded students)



Source: INAC Post-Secondary Education System.

Among full- and part-time INAC-funded students in two-year college programs (Figure 7), it is interesting to note that the retention rates for females are much higher than the retention rates for their male counterparts—suggesting that women are continuing their education at higher and longer rates than their male counterparts. This also mirrors the number of female students attending college in all of Canada who outnumber their male counterparts significantly (55% of college students in Canada are female, based on Statistics Canada 1998–99 data). The consideration for policy development lies in determining why, in fact, women are continuing their college (and university) education programs at higher rates and for longer durations than men.

Figure 8: Cumulative retention rates by school type, for cohort 1985–86, Canada (INAC-funded students)



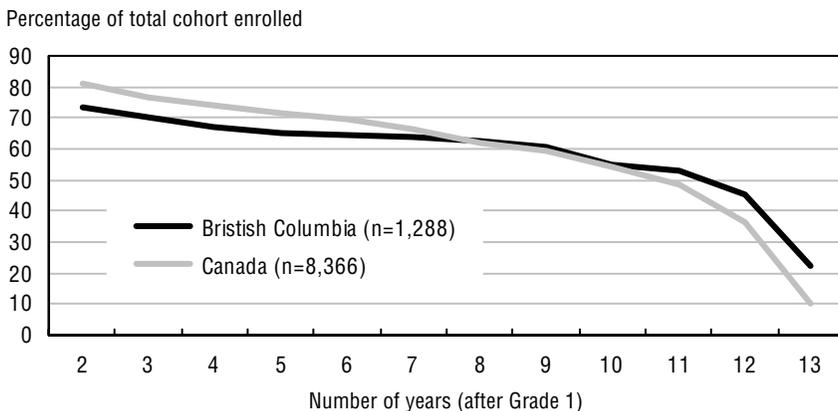
Source: INAC Nominal Roll.

The student tracing methodology provides the ability to analyze outcome measures for different variables such as school types. Figure 8 represents the retention rates of INAC-funded students by school type starting at Grade 1 in the 1985–86 school year. The cohort proportion continuing school from one year to the next is greater for those in First Nation schools. A policy implication that this raises is whether there are different support mechanisms available in First Nation schools that are increasing retention in comparison with INAC-funded students in provincial schools. These findings raise questions such as: Are these results due to mobility of students between on- and off-reserve? Are there different support mechanisms available in different school types?

Similarly, other analyses (not shown here) indicate that retention rates also tend to vary by post-secondary institutions, leaving one to consider—from a policy perspective—what characteristics and qualities of post-secondary institutions generate higher retention levels.

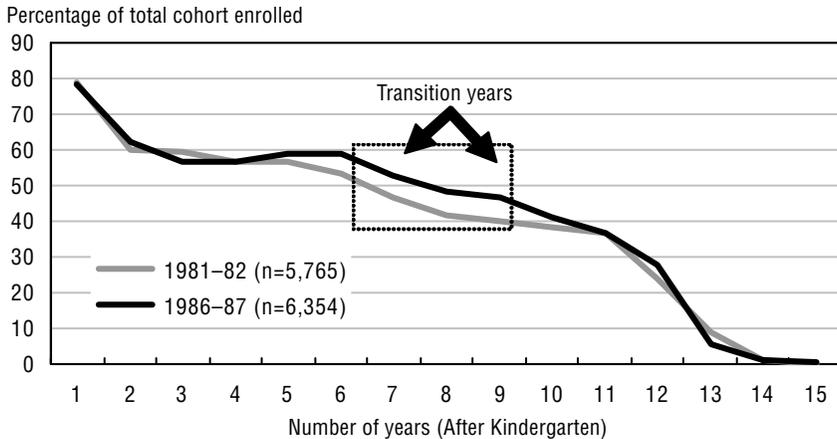
Variation in retention rates also exists in different regions. In British Columbia, elementary and secondary students have a lower retention rate in primary school, but a greater retention rate in secondary school when compared with the rest of Canada (Figure 9). Identifying such regional variations provides further insight and understanding into variation at a larger, institutional level, and may provide some clues to factors underlying these differential outcomes.

Figure 9: Cumulative retention rates for elementary and secondary school, for cohort 1989–90, British Columbia and Canada (INAC-funded students)



Source: INAC Nominal Roll.

Figure 10: Cumulative promotion rates for elementary/secondary students, for two cohorts 1981–82 and 1986–87, Canada (INAC-funded students)

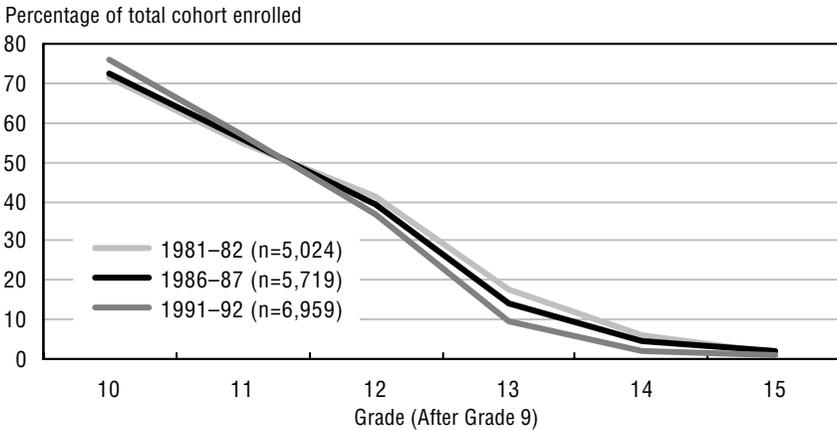


Source: INAC Nominal Roll.

Promotion Rates

Figure 10 illustrates the cumulative progression rates of INAC-funded students between the periods 1981–82 and 1986–87 on the NR. The cohort proportion being promoted from one year to the next increased between 1981–82 and 1986–87. For instance, of the some 5,765 students that began kindergarten (K5) in the 1981–82 cohort, about 50% were promoted from Grade 6 to Grade 7. In comparison, of the 6,354 students identified in the 1986–87 cohort, more than half (approximately 59%) progressed from Grade 6 to Grade 7. Although there was an increase in promotion rates in this ten-year period, the promotion rates continued to be low during the transition years from elementary into secondary school, suggesting this is a critical point in a student's educational progress.

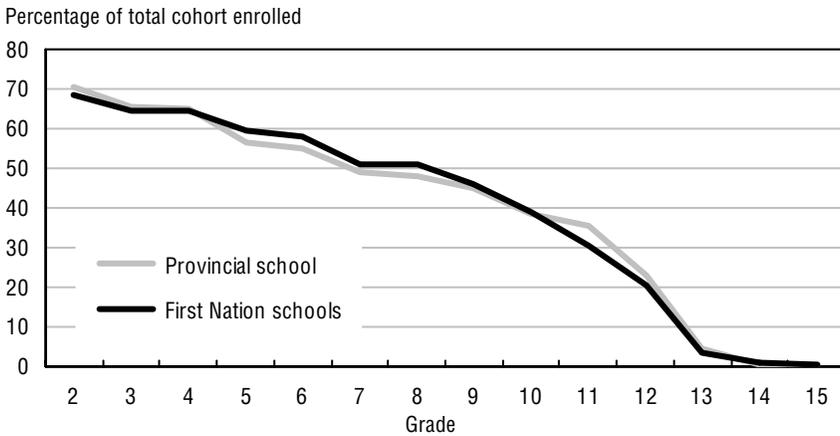
Figure 11: Cumulative promotion rates for secondary students, three cohorts 1981–82, 1986–87, and 1991–92, Canada (INAC-funded students)



Source: INAC Nominal Roll.

While there are indications that promotion rates over the early secondary grades increased in the decade between the 1981–82 and 1991–92 cohort, there appears to be little improvement in the later secondary grades. Figure 11 represents the promotion rates of INAC-funded students beginning in Grade 9. Factors that contribute to the continued low retention and promotion rates in higher grades need to be identified so that an improved policy for educational success can be developed.

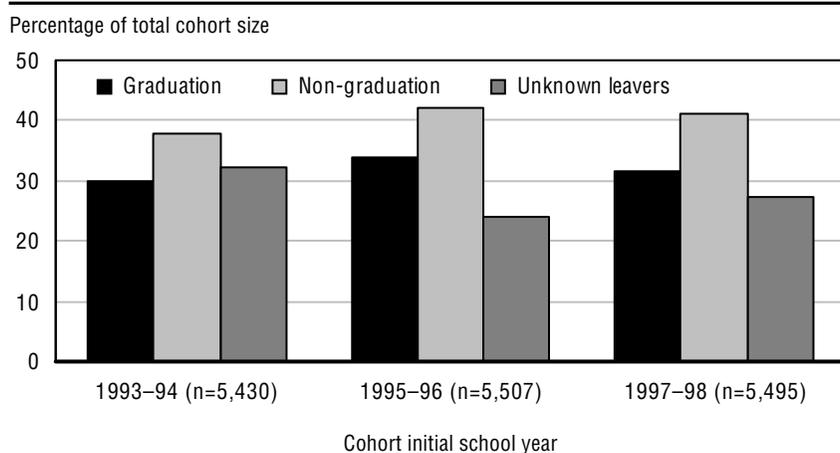
Figure 12: Cumulative promotion rates by school type, for cohort 1985–86, Canada (INAC-funded students)



Source: INAC Nominal Roll.

Analysis based on the tracing tool also illustrates the presence of variation in promotion rates among school types. Figure 12 represents the promotion rates of INAC-funded students by school type, beginning in Grade 1, in the 1985–86 school year. The cohort proportion being promoted from one grade level appears to be somewhat greater for those in First Nation schools in the earlier years of study in comparison to provincial schools, prompting further inquiry into the impact on promotion rates of students transferring from First Nation schools to provincial schools. It is important to note that many First Nation schools do not provide the full range of Grade levels. Therefore, students may attend a First Nation school for a certain period (such as Kindergarten to Grade 4) and then transfer to a provincial school that offers grade levels beyond those offered by the First Nation school.⁷

Figure 13: Graduation rates, non-graduation rates, and unknown leavers for three cohorts starting in Grade 12, 1993–94, 1995–96, and 1997–98, Canada (INAC-funded students)



Source: INAC Nominal Roll.

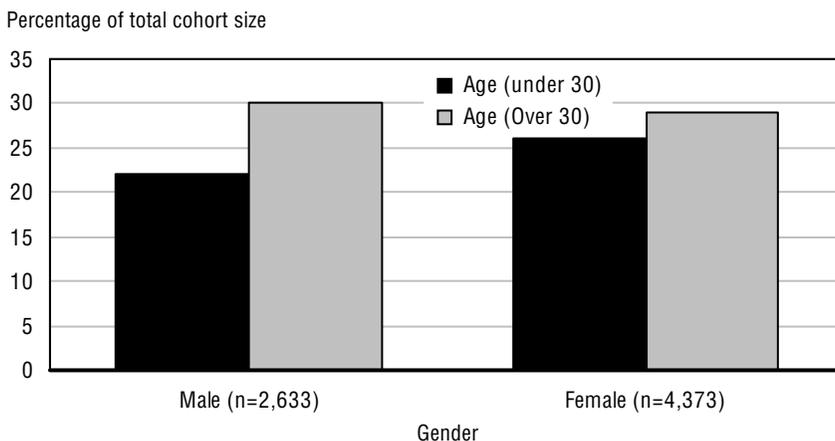
Graduation Rates

Figure 13 represents graduation and non-graduation rates and unknown leavers starting in Grade 12. At first glance, graduation rates appear to decline from the 1993–94 school year to the 1997–98 school year. However, unknown leaver files make up a significant percentage of the total cohort size and may distort the perception of graduation rates. Unknown leavers comprise over a quarter of all graduates and non-graduates combined; of the students who were enrolled in Grade 12, only a third are recorded as graduates; students were traced for several years to allow for time to complete Grade 12. Are unknown leaver students really not graduating, or are

they continuing their education outside of the INAC Elementary/Secondary Education program, and, consequently, not being recorded accurately on the Nominal Roll?

Of course, it is for precisely this reason—not knowing the outcomes of those students exiting the Nominal Roll files—that the rates of graduation from secondary school are difficult to determine with the current tracing methodology. Apart from illustrating the types of analysis possible, the current results need to be interpreted with caution. Thus, it is difficult to interpret the overall declining trend in graduation rates over the three cohorts that were enrolled in Grade 12: 32% of students graduating from Grade 12 in 1993–94 decreasing to 24% in 1995–96, and only a slight rise to 27% in 1997–98. The issue of “unknown leavers” is one of the areas within the tracing methodology that will require further development, and, in the meantime, indicates that caution is required in interpreting these indicators.

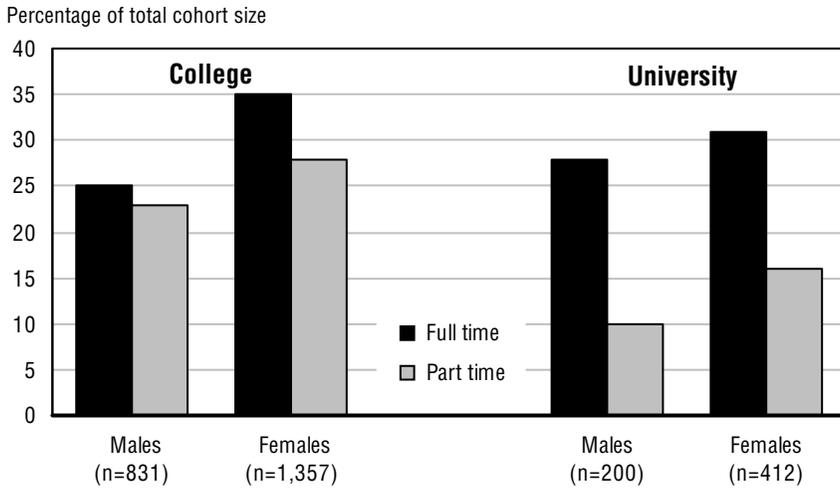
Figure 14: Graduation rates of post-secondary students by gender and age group, under and over the age of 30 for all programs, for cohort 1997–98, Canada (INAC-funded students)



Source: INAC Post-Secondary Education System.

Graduation rates of INAC-funded post-secondary students by age group and gender (Figure 14) suggests that gender differentials vary by age group. Among the older students over the age of 30, males have slightly higher graduation rates than females; whereas among students under the age of 30, females have significantly higher graduation rates than males. Again, these results for the younger cohorts tend to be consistent with other findings from the Census indicating higher rates of educational achievement for women. The graduation rates in the over-age-30 group are higher for both men and women compared to their younger counterparts.

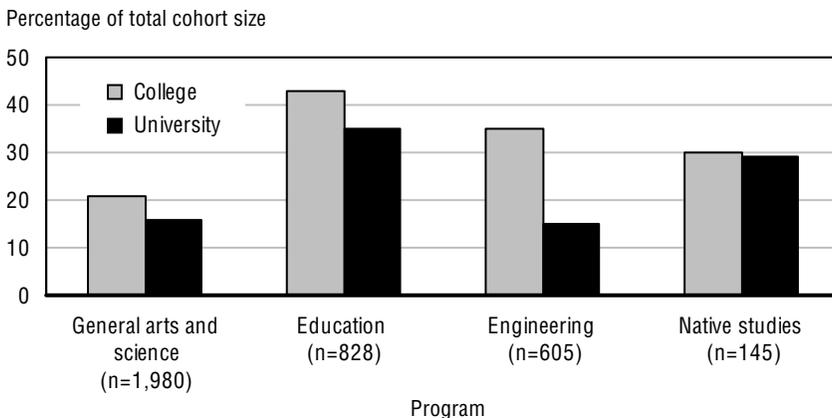
Figure 15: Graduation rates by gender, institution type and attendance for cohort 1997–98, Canada (INAC-funded students)



Source: INAC Post-Secondary Education System.

Figure 15 represents the graduation rates of INAC-funded students by gender, institution type (college or university) and attendance (full-time or part-time). Female students attending college full-time have the highest graduation rates of all available fields, followed closely by the graduation rates of full-time female students in university. Females tend to graduate at higher rates than their male counterparts, perhaps corresponding to their higher attendance rates (not shown here). Not only do females graduate at greater rates in full-time study programs, but they also have higher graduation rates for part-time study programs. However, it is also noted that full-time graduation rates, in general, are much higher than part-time study graduation rates. Full-time university graduation rates double the part-time graduation rates, and college part-time graduation rates are still significantly lower than full-time graduation rates—although the gap is much more narrow. In order to inform policy, further investigation needs to be made regarding why full-time study outcomes are better than part-time outcomes, in addition to factors that need to be considered with respect to gender differentials in graduation rates. Variation in graduation rates by attendance and gender could impact the effectiveness of programs aimed at improving student outcomes when these factors are not explicitly considered.

Figure 16: Graduation rates of post-secondary students by area of study, for cohort 1997–98, Canada (INAC-funded students)



Source: INAC Post-Secondary Education System.

Graduation rates vary quite significantly depending on area of study, and INAC-funded students tend to graduate more frequently from college than from university (Figure 16). Furthermore, more detailed analysis (not presented here) suggests that graduation rates of INAC-funded students vary significantly by institution. These types of analyses may provide some insight into the type of factors that vary from institution to institution, possibly contributing to the differences in their graduation rates.

Conclusion

The type of analysis presented here suggests that the tracing methodology has the potential to better inform Aboriginal policy research on education, particularly by yielding a more strategic understanding of the issues as derived through a longitudinal perspective. The methodology provides new insights into the many aspects that may impact educational attainment (e.g., age, gender, geographic location, regions, different school types and post-secondary institutions) by allowing an examination of how these outcomes may vary by period and cohort. In so doing, such an approach may provide an evidence base for a more strategic educational policy approach; suggesting where resources need to be targeted in order to better address problem areas, and where a better return on investment can be achieved.

As an example of this application, the tracing tool clearly demonstrates that the transition years from elementary to secondary school can be critical in a student's progress, as evidenced by the tendency observed in cohorts to experience declining retention and progression rates over this period. Many

First Nation schools are only able to provide education up to a certain grade; students must attend a provincial school if they are to continue their educational career. Even if the school provides the full range of grade levels, students often attend provincial schools in order to access a larger variety of educational opportunities (i.e., specialized curriculum that cannot always be offered in smaller First Nation schools). The consequence of this is that students seem to be experiencing a magnified impact in their transition years. Not only do First Nation and Inuit students face the typical pressures involved in a move to secondary school level (bigger classrooms, higher expectations, increased social pressures), but many students are also attending non-First Nation schools in provincial jurisdictions for the first time. The tracing tool provides the quantitative evidence that students experience more difficulty at this period in their educational careers—retention rate begins to decrease significantly around Grade 6. Programming and services targeted to this transition period may provide the best strategic investment.

Analysis using the tracing tool also highlights the potential of programs and services geared towards older students, especially in post-secondary education. In order to facilitate the graduation and success rates of students pursuing post-secondary education, strategic policy and programming would need to address the separate service and program needs of older students. These students have increased levels of responsibility since many have already moved into the family-formation years. First Nation and Inuit students wanting to pursue a post-secondary education must also contend with “adult responsibilities” such as mortgage/car payments, child expenses and other care costs, taking care of elders, and so on. We can see from the tracing tool that, for those over 30 years of age, the graduation rate for males (30%) is higher than for females (26%). Further research is needed to investigate the barriers that particularly affect Aboriginal women over the age of 30.

In addition to providing a better understanding of the outcomes of First Nation and Inuit students, the tracing methodology will aid in understanding the social and economic gap(s) that exist between First Nations and the rest of Canadians. Despite recent and existing policy development and other changes in social programs, the social and economic gaps between Canadians and the Aboriginal populations, including First Nations and Inuit, continue. Education is one of the major determinants of an individual’s social and economic status. Therefore, this approach will be a powerful aid in understanding the current predicaments and situations that have prevented the narrowing of the socioeconomic gap between First Nations and Inuit and the rest of Canadians. The tracing methodology can contribute to developing strategies that improve current policies and programs, in addition to creating indicators that measure the effect of those policies and programs in order to further feed the cycle of policy development.

The ability to develop policy would be further enhanced by addressing the limitations associated with the tracing tool. In order to address the limitations associated with the tracing tool and for the tool to be used as a reliable and robust indicator for INAC's education programs, it is essential that INAC and provincial education data be shared. Otherwise, the current tool will only provide a "snapshot" of patterns of educational attainment in the areas of retention, progression and graduation rates, and will be severely limited by only capturing these trends within the period that students are funded through INAC's education programs. For INAC, the following are potential benefits of sharing education data with provincial education systems: (1) the provision of improved information on the outcomes and performance of INAC's educational programs and expenditures, (2) an improved basis for educational program planning, (3) greater accountability of the federal government to the public concerning educational programs, and (4) greater accountability of INAC to First Nations and Inuit and of First Nations and Inuit to their community and membership concerning educational programs.

Endnotes

1. The authors acknowledge, with thanks, technical support provided by Lucette Dell' Oso of the Strategic Research and Analysis Directorate (SRAD), Naomi Orvis of Learning, Employment and Human Development, and editorial input provided by Jordana Heaton of SRAD.
2. Within this paper, the term First Nation is generally used interchangeably with Registered Indians.
3. Caution needs to be used in interpreting these trends due to the impact of the 1985 amendments to the *Indian Act* (known as Bill C-31). Changes were made to the rules that determine how Registered Indian status is passed on from one generation to the next in order to remove discriminatory clauses (such as women and their children being ineligible for registration if they married a non-Registered man). For a detailed discussion on this issue and specifically on how socioeconomic conditions (including education levels) differ by various Aboriginal groups, see A. Siggner et al., "Understanding Aboriginal Definitions: Implications for Counts and Socio-Economic Characteristics" (presented at Aboriginal Policy Research Conference, Hull, Q.C., November 2002).
4. Data was extracted from Hull (2000) and savings on government transfers calculated in-house.
5. A large body of knowledge has documented the lower socioeconomic conditions of Aboriginal peoples and Registered Indians living in Canada compared to the Canadian population. These trends show that Registered Indians have lower income levels, higher rates of unemployment, lower success rates within the educational system, and higher fertility and mortality rates. Further reading on these indicators can be found in Siggner et al.; Statistics Canada, *Health Reports: How Healthy are Canadians?* (Ottawa: Minister of Industry, 2001); Department of Indian Affairs and Northern Development, *Comparison of Social Conditions, 1991 and 1996* (Ottawa: Department of Indian Affairs and Northern Development, 2000).
6. This population includes those who in the Census reported having Aboriginal Ancestry (Ethnic Origin), and/or those who reported having Aboriginal Identity, and/or those who reported being a Treaty Indian or a Registered Indian as defined by the *Indian Act* of Canada, and/or who were members of an Indian Band or First Nation.
7. The tracing tool has been modified to incorporate a multi-dimensional tracing so that the outcomes of students moving between school types can be traced. For instance, the tool can now determine the retention/progression/graduation rates of all students that started school in Grade 1 in a First Nation school and determine the outcomes if they continued in a First Nation school or transferred to a provincial school.

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