



Key Policy Issues in Aboriginal Education:

An Evidence-Based Approach



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Key Policy Issues in Aboriginal Education: An Evidence-Based Approach

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EXECUTIVE SUMMARY

In *Learn Canada 2020*, provincial and territorial ministers of education, acting through the Council of Ministers of Education, Canada (CMEC), affirmed their commitment to improving outcomes for Aboriginal students and identified the gaps in academic achievement and graduation rates between Aboriginal and non-Aboriginal students as a key area for attention. One of the strategies articulated in the CMEC Aboriginal Education Action Plan for addressing these gaps in outcomes is “strengthening the capacity for evidence-based decision making.” Toward that goal, CMEC commissioned a report to consider how better data and evidence can be developed to support jurisdictions’ efforts to improve the academic achievement and attainment of Aboriginal students in provincial and territorial elementary and secondary schools.

PART 1: IDENTIFYING DATA AND EVIDENCE GAPS

A series of informant interviews were conducted with national and regional Aboriginal organizations (NAOs and RAOs) and with provincial and territorial departments or ministries of education. These informants stressed that evidence must be produced through an ethical process that engenders trust, and revealed three key ways that data and evidence can contribute to policy development in Aboriginal education, by:

- identifying the locations and needs of Aboriginal students in order to improve program quality and delivery;
- informing and influencing strategic decision making about valuable policies and programs; and
- increasing accountability to stakeholders through documenting and sharing challenges, activities, progress, and successes in Aboriginal education.

The first part of the report assesses existing data and evidence in relation to these goals, and identifies key gaps in both. Important data gaps were identified in six key areas:

- The process of collecting data that identifies Aboriginal students continues to face substantial challenges.
- The availability of results from jurisdiction-wide assessments for Aboriginal students is limited.
- Relatively few measures are reported that can satisfy the wishes of Aboriginal parents and communities to monitor the social, physical, and spiritual well-being of individuals and communities throughout the life cycle.

- Data about particular barriers to Aboriginal student success, such as absenteeism and transitions between education systems, are not regularly collected and/or reported.
- Data that measure efforts and progress toward overcoming specific barriers to Aboriginal student success are not generally available.
- Early-childhood assessment tools are not consistently administered, nor are they always trusted.

Specific evidence gaps were highlighted with respect to four policy and program areas that are contentious, costly, or both, and where the current body of evidence to assess their effectiveness is weak:

- the role of targeted funding for Aboriginal education in achieving tangible improvements in core educational goals;
- the effects of early childhood education programs on the outcomes of Aboriginal children;
- the effectiveness of specific interventions to increase parental and community engagement with the educational system; and
- the impact of effective language and culture supports on other academic outcomes.

PART 2: STRENGTHENING DATA AND EVIDENCE

The second part of the report aims to outline concrete, cost-effective steps that jurisdictions could take to address these data and evidence gaps and facilitate the creation of a strong foundation for sound, strategic policy development in Aboriginal education.

Jurisdictions could develop and improve their administrative and assessment data by expanding current efforts in the following areas.

- **Aboriginal self-identification:** collect a standardized Aboriginal identifier that distinguishes between on- and off-reserve First Nation, Métis, and Inuit students; investigate changes in rates of Aboriginal self-identification and interpret trends in outcomes in light of these changes; increase efforts to provide transparency and clear communication with Aboriginal communities with respect to the use of data that identify Aboriginal students.
- **The scope and frequency of data collection:** improve collection and reporting of measures of educational attainment and high-school completion rates separately for First Nation, Métis, and Inuit students; administer standardized tests in numeracy and literacy to all students in multiple grades on an annual basis; develop and administer assessment tools to measure the achievement of students who do not participate in standardized tests; conduct annual assessments of early childhood development of Kindergarten students; report attendance data; develop and report school-environment indicators such as the number of Aboriginal

teachers and administrators, availability of traditional language instruction, and knowledge and attitudes of teachers and administrators.

- **Data linkage:** maintain consistent student identification numbers that permit the construction of longitudinal student records; link education records to other sources of administrative data, such as from the healthcare and social assistance systems, in order to capture holistic outcome measures.

Provinces and territories can support the creation of a strong evidence base by encouraging and facilitating analysis of administrative data by external researchers through three types of initiatives.

- **Incorporate evaluation into the design and implementation of new programs and policies.** Examples of how this can be done include: introducing a random element into program access when the number of students wishing to enrol exceeds the number of available spaces; allocating program access based on an observable ranking of students or schools; and rolling out implementation of new programs over time.
- **Provide timely, affordable researcher access to administrative records.**
- **Share knowledge of programs, policies, and communities with researchers.**

NEXT STEPS

In order to yield its potential benefits, a data and evidence strategy must be designed in a way that minimizes implicit bias, avoids disempowering other voices, maintains a broad focus, and concentrates on questions on which data and evidence can shed important new light with respect to contentious policy directions or programs that absorb substantial resources. Success will require substantial and ongoing communication and collaboration between communities, Aboriginal organizations, educators, administrators, policy-makers, and researchers.

Specific next steps that provinces and territories can take in light of the findings of this report include the following:

- In consultation with Aboriginal stakeholders, review current administrative and assessment data collection and reporting procedures in relation to the specific limitations identified in this report and consider the recommended strategies for overcoming them.
- Initiate discussions or develop closer ties with quantitative researchers interested in Aboriginal education in order to encourage ethical, cost-effective analysis of provincial/territorial administrative data that can inform policy development. Specifically:
 - explore ways of bringing together provinces, territories, interested quantitative researchers and Aboriginal stakeholders to discuss the report's recommendations, identify areas of common interest, and create opportunities for closer collaboration;

- in consultation with Aboriginal stakeholders, engage external researchers to consider how program evaluation may be “designed into” the implementation of initiatives that are currently under discussion.

Specific next steps that CMEC can take in light of this report’s findings include the following:

- Continue efforts to coordinate pan-Canadian procedures and standards for administrative and assessment data.
- Explore levels of interest among CMEC members and NAOs in addressing the specific evidence gaps identified in the report. Identify partners and funding sources for one or more collaborative research projects to address gaps of widespread interest.

PART 1

IDENTIFYING DATA AND EVIDENCE GAPS



1. INTRODUCTION

In *Learn Canada 2020*, provincial and territorial ministers of education, acting as the Council of Ministers of Education, Canada (CMEC), affirmed their commitment to improving outcomes for Aboriginal students and identified the gaps in academic achievement and graduation rates between Aboriginal and non-Aboriginal students as a key area for attention (CMEC, 2008a). One of the strategies articulated in the CMEC Aboriginal Education Plan for addressing these gaps in outcomes is “strengthening the capacity for evidence-based decision making” (CMEC, 2008b). Toward that goal, CMEC commissioned *Key Issues in Aboriginal Policy: An Evidence-Based Approach* to consider how better data and evidence can be developed to support jurisdictions’ efforts to improve the academic achievement and attainment of Aboriginal students in provincial/territorial elementary and secondary schools. The objective of the first part of this report is to identify key gaps in the data and evidence currently available to meet the needs and priorities of policy-makers and stakeholders. The second part aims to outline concrete steps that jurisdictions could take to address these data and evidence gaps, and to facilitate the creation of a strong foundation for sound, strategic policy development in Aboriginal education.

2. HOW COULD BETTER DATA AND EVIDENCE CONTRIBUTE TO POLICY DEVELOPMENT?

A series of informant interviews were conducted in order to identify how data and evidence are currently used in the policy-making process, and to learn about informants’ needs and priorities with respect to data and evidence. Representatives from five NAOs, 40 RAOs, and each of the provincial and territorial departments of education were invited to participate. In total, 25 different government and stakeholder groups participated, representing all regions of the country. These include representatives of nine provinces, two school districts, four NAOs and 10 RAOs. APPENDIX I describes the interview process in greater detail and lists participants.

These informant interviews revealed three ways in which better data and evidence could contribute to policy development in Aboriginal education: by identifying student needs in order to improve program quality and delivery; by informing strategic decision making about investments in policies and programs; and by increasing accountability to stakeholders.

2.1 Identifying student needs

Data that identify the locations and needs of Aboriginal students can contribute to the effective design and delivery of programs and services. This issue is of particular importance in areas where off-reserve First Nation and Métis students are not easily identified and was highlighted by informants whose organizations represent the interests of off-reserve First Nation and Métis students, as well as by some of the provinces that have large urban Aboriginal populations.

2.2 Supporting strategic decision making

Addressing the needs of Aboriginal learners within the constraints imposed by limited resources requires a strategic approach that focuses investments in those areas that will yield the greatest benefits in relation to specific goals and priorities. Reliable data and rigorous, objective research that meet the high standards required for evidence-based policy development (Smith & Sweetman, 2010) can contribute important new evidence to supplement experiential knowledge and inform professional judgments.

Provincial informants agreed that formal evidence about “what works” in Aboriginal education would be useful. In larger provinces with diverse Aboriginal populations, centralized decision makers do not benefit from direct, hands-on observation of the consequences of their decisions for student learning. Instead, they must rely on their own professional judgment and the assessments and reports of a large and diverse group of district staff, educators, and parents. In this context, some senior government informants described data and evidence that summarize needs, progress, and program effectiveness with respect to well-defined goals as important supplements to these assessments. This view was consistent with that of provincial informants from jurisdictions with less diverse or smaller Aboriginal populations. In these jurisdictions, central decision makers tend to have relatively more direct interactions with districts, educators, or students and are more involved in the specifics of programs that are being offered. While agreeing that data and evidence were welcome and useful as a supplement to what is currently being done, there was concern that a greater focus on producing data and evidence could divert scarce resources away from program delivery.

Some informants from NAOs and RAOs expressed clear and strong support for a more evidence-based approach to strategic decision making directed toward improving outcomes of Aboriginal students. Others stated that the needs of Aboriginal learners and the steps required to address those needs are already well understood; they urge action on those steps, rather than further efforts to inform their direction. When formal quantitative evidence is produced through an ethical process that engenders trust, and *if* that evidence were to influence policy-makers to take appropriate action or would secure sustained funding for valuable existing initiatives, that evidence would be widely seen as having value.

2.3 Increasing accountability

The importance of complete and accurate reporting of education outcomes was strongly emphasized by many informants to this project. In addition, some Aboriginal organizations expressed a strong desire for a more comprehensive approach to reporting the steps that jurisdictions are taking to deliver specific services. By documenting challenges, activities, progress, and successes in Aboriginal education and sharing these results widely, school districts can become more accountable to provincial/territorial governments for their decisions, and governments can become more accountable to stakeholders. In turn, governments can benefit from more informed external input into the policy-development process and increased trust and engagement with communities.

3. KEY DATA GAPS

Whether for purposes of increasing accountability, informing strategic decision making, or improving the quality and delivery of programs and services, a fundamental requirement of an evidence-based approach is reliable, consistent data. At a minimum, these data must identify Aboriginal students and include meaningful measures of outcomes of interest. To realize their full potential for evidence-based policy development, they must have sufficient scope and consistency over time to support rigorous policy and program evaluation. This section assesses available data in relation to these requirements and identifies important gaps that hamper efforts to quantify results.

3.1 Identifying Aboriginal students

An evidence-based approach to policy development must be based on accurate, informative, and consistently measured data on the Aboriginal identity or ancestry of students. These data are based on the complex and sensitive decision that families make with respect to identifying their children as Aboriginal in the context of the school environment. Despite the potential limitations of self-identification, there is no feasible alternative means of identifying Aboriginal students, so identifiers will continue to be based on this method.

Informants from organizations representing off-reserve First Nation and Métis peoples emphasized that Aboriginal identifiers must clearly distinguish on- and off-reserve First Nation, Métis, and Inuit students in order to ensure accountability and to provide culturally relevant learning opportunities. Very few pan-Canadian data sources currently report education data for distinct Aboriginal groups. The Census of Canada does so, as does the post-census Aboriginal Peoples Survey (APS) and Aboriginal Children's Survey (ACS), making these important sources of data that provide insight into large-scale and long-term trends on selected education measures. However, the census is not an effective means of assessing short-run trends in educational outcomes, as it is only collected every five years. In addition, a number of informants expressed concern that the replacement of the mandatory long-form census with the optional National Household Survey (NHS) in 2011 may produce substantial non-response bias affecting both overall accuracy and comparability with previous results.

Other data sources that include Aboriginal indicators are the Programme for International Student Assessment (PISA) and CMEC's Pan-Canadian Assessment Program (PCAP). PISA is administered every three years in all provinces and assesses literacy in math, reading, and science in a random sample of 15-year-olds from a randomly selected group of schools. Unfortunately, not all PISA cohorts include an Aboriginal identifier. PCAP is a testing program for Grade 8 students first implemented in 2007 and which includes an Aboriginal identifier. The primary disadvantage of these surveys is their sample size, which is too small to provide reliable measures for Aboriginal students for provinces and territories, or for specific disaggregated Aboriginal groups.

The development and use of provincial/territorial administrative data as the basis for evidence-based policy development is a promising alternative to survey data; they are collected annually, and they

capture data from all students in the provincial/territorial education system.

Currently, provincial administrative data suffer from several limitations. The first issue is coverage. Quebec, New Brunswick, and Newfoundland and Labrador do not collect an Aboriginal self-identifier and so are only able to consistently identify on-reserve First Nation students (Educational Policy Institute, 2008).

The second issue is consistency. British Columbia, Saskatchewan, Manitoba, Ontario, Nunavut, and Northwest Territories collect data from all districts according to standardized categories, but districts have discretion on exactly what questions to ask families. This approach allows districts to be responsive to local concerns at the expense of some comparability. In contrast, Alberta, Prince Edward Island, and Yukon have standardized questions that are asked in all districts.

The third issue is detail. Currently, Alberta, Manitoba, Nova Scotia, Ontario, Prince Edward Island, and Yukon are the only jurisdictions with standardized reporting categories for districts to use that distinguish between First Nation, Métis, and Inuit students. Northwest Territories asks students to identify as Dene, Métis, Inuit, Southern Aboriginal, or non-Aboriginal. Several provinces have implemented and/or enhanced their Aboriginal self-identifiers quite recently, so these data may not yet be usable for viewing trends.

The fourth limitation of provincial administrative data is the lack of standardization in self-identification *across* jurisdictions. For example, some jurisdictions collect data on Aboriginal ancestry, while others collect data on Aboriginal identity. Having a common approach to self-identification for evidence-based decision making is highlighted in CMEC's *Aboriginal Education Action Plan* (CMEC, 2008b).¹ The lack of a common approach compromises the comparability of data across jurisdictions and precludes policy and program evaluation strategies that might be based on cross-jurisdictional comparisons.

The fifth issue, emphasized by some NAO/RAO informants, is the challenge of ensuring that self-reported data are accurate and consistent over time. Unlike responses to the census, self-identification in the school environment may have direct consequences for how students are perceived, streamed, funded, etc. Where this is the case, the resulting incentives may lead to response patterns that differ from those where there are no direct incentives. Even with a standardized question and data-collection procedure, self-identification rates may differ in jurisdictions like British Columbia and Alberta that tie funding to these indicators, compared to jurisdictions that do not. When Aboriginal identifiers are used to track progress in outcomes over time or undertake program and policy evaluation, results are sensitive to changes in patterns of self-identification. There can also be challenges in matching self-identifications in locally generated data (e.g., as part of a program assessment) to those in provincial/territorial administrative data.

Finally, some NAO/RAO informants voiced strong ethical objections to using administrative data based on Aboriginal identifiers for purposes that were not clearly explained to individuals and communities at the time they were asked to self-identify.

1. The Canadian Education Statistics Council, a partnership between CMEC and Statistics Canada, is currently working toward a harmonized Aboriginal student identification process across jurisdictions based on identity.

3.2 Measuring student outcomes

A quantitative approach to evidence-based policy development links actions and decisions to outcome measures that reflect goals and priorities. Academic success, defined in terms of academic attainment (years of schooling/credentials) and achievement (academic skills), is a core goal of provincial/territorial education systems, and this goal is shared by Aboriginal organizations. In addition, most NAO/RAO informants identified a broader set of goals that are more holistic in nature, such as health, community engagement, cultural knowledge, and emotional well-being. Some NAO/RAO informants viewed holistic and academic goals as complementary and equally important, while others prioritized one set of goals over the other. This section assesses current gaps in data-measuring outcomes that reflect these goals.

Educational attainment

Educational attainment measures are available in census, survey, and administrative data. Prior to 2006, census data measured the highest level of schooling obtained. The most commonly reported measures are the share of 20–24 year olds who have a high-school diploma (interpreted as the high-school completion rate) and the overall breakdown of educational attainment among adults. In addition to the limitations of the census noted previously, changes to the relevant census question in 2006 have made comparisons over time difficult, and reduced the usefulness of this measure. Beginning in the 2006 Census, educational attainment is reported as the highest credential obtained, rather than the previously measured level of education. This information does not distinguish, for example, between individuals who attained a Grade 4 education and those who attained a Grade 11 education. Evidence demonstrates that additional years of schooling bring substantial long-term benefits, even if students do not complete high school (Oreopoulos, 2007). This issue is highly relevant when assessing degrees of success among Aboriginal students, who sometimes face serious challenges early in their schooling. Further, while the census provides data on trends when it comes to educational attainment, the data cannot be validated and therefore must be treated with the caution needed for all self-reported data.

As an alternative, provincial/territorial administrative data on educational attainment is widely available on an annual basis, and can often be tied to other data in the student's record. High-school completion is usually measured in administrative data by the proportion of students in a given grade who complete high school within a given period of time (e.g., the proportion of Grade 8 students that complete high school within six years). Grade-to-grade transitions and schooling interruptions can be measured in a similar way.

In addition to those noted previously with respect to Aboriginal identifiers, provincial/territorial administrative data on educational attainment have several limitations. First, some jurisdictions do not maintain the longitudinal student-level records that are required to construct a complete set of attainment measures. Second, students who attend a First Nation school in the early grades and never transition into the provincial/territorial system for further education will not appear in administrative data and will therefore be excluded from high-school completion measures, causing drop-out rates to be underestimated. Third, some informants expressed concern that reported high-

school completion rates may overstate the educational attainment of Aboriginal students if they do not distinguish between standard diplomas and diplomas that provide more limited access to labour-market and postsecondary opportunities. Finally, differences in data collection procedures mean that administrative measures of educational attainment are not comparable across jurisdictions.

Academic achievement

Literacy and numeracy skills provide a necessary foundation for academic success and lifelong learning and are therefore of particular importance. Provincial/territorial informants identified accurate measures of student achievement levels as important ingredients in the process of developing strategies to improve outcomes. Numerous data sources exist that assess literacy and numeracy skills at various stages of a student's education. The most relevant pan-Canadian assessment programs are PISA and PCAP. PISA results are used regularly in inter-jurisdictional and international comparisons, and some informants reported that increasing PISA scores was an important priority of education ministries. PCAP complements PISA by assessing the same skills on a cycle such that, for example, the 13-year-olds assessed in the 2007 PCAP would have been drawn from the same cohort of students as the 15-year-olds assessed in the 2009 PISA. The usefulness of PISA and PCAP in tracking achievement among Aboriginal students is limited both by unavailability of Aboriginal identifiers in some early PISA cohorts and by limited accuracy due to small sample size. Although the PISA and PCAP samples are large overall, within-province results for Aboriginal students would be based on a much smaller sample.

Given the limitations of pan-Canadian achievement data, assessments of academic skills administered by provincial/territorial education systems are essential sources of data on academic achievement. Classroom-based assessments can meet many of the information needs of educators and parents, and sometimes of school districts. In order to track progress at more aggregate levels and to make comparisons across regions and school districts, or to conduct certain types of formal program evaluation, large-scale standardized tests are required.

Table 1 summarizes current large-scale provincial and territorial assessment programs. Most jurisdictions test achievement in high school, typically in Grade 12. While useful, these tests provide no information about the achievement of students who do not attain these grades. Moreover, they provide no insight into the stage at which Aboriginal students tend to fall behind. An evidence-based approach to decisions about how best to target resources to remedy skill deficiencies would rely on data that indicate whether achievement gaps emerge early or late, and whether they shrink or expand as students progress through the grades. Annual standardized tests are administered to students in a variety of grades, making it possible to do so. Notable exceptions are Manitoba, which does not administer large-scale standardized tests before Grade 12, and Saskatchewan, which tests literacy and numeracy skills biannually.

Table 1: Aboriginal identity and standardized testing programs by province/territory

Jurisdiction	Aboriginal Identifier	Grade(s) Tested	Name of Assessment and Subject
British Columbia	Yes	4,7	Foundations Skills Assessments in literacy and numeracy
		10	Provincial exams in math, language arts, and science
		11	Provincial exams in social and civic studies
		12	Provincial exams in language arts
Alberta	Yes	3,6,9	Provincial Achievement Tests in literacy and numeracy in all grades; in science and social studies in Grades 6 and 9 only
		12	Diploma Exams in math, science, language arts, and social studies
Saskatchewan	Yes	12	Provincial department exams in math, language arts, and sciences
		5,8	Assessment for Learning in numeracy (odd years) or writing (even years)
		4,7,10	Assessment for Learning in reading (odd years)
Manitoba	Yes	3,7,8	Classroom-based assessments in literacy and numeracy (not standardized across the province)
		12	Standards tests in language arts and math
Ontario	Yes	3,6,9	Assessment of reading, writing, and mathematics
		10	Ontario Secondary School Literacy Test
Quebec	No	4,6	Compulsory exams in language arts
		2,3,4,5,6	Compulsory exams in math
		Secondary IV, V	Uniform exams in language arts, math, history, and science
New Brunswick	No	2,4,7	Assessment of literacy
		6	Assessment of science
		9	English language proficiency assessment
		3,5,8	Assessment of numeracy

Nova Scotia	No	3,6,8,9 12	Program of Learning Assessment for Nova Scotia (PLANS) in language arts and math Nova Scotia exams
Prince Edward Island	Yes	3,6,9	Provincial Assessment Program in literacy (Grades 3,6) and math (Grades 3,9)
Newfoundland and Labrador	No	3,6,9 12	Criterion Reference Tests in language arts, math, science Public exams in math, sciences, language arts, and social studies
Northwest Territories	Yes	3,6,9 12	Follows Alberta's testing program; see above for subject areas.
Nunavut	Yes	No information provided	
Yukon	Yes	3,6,9 4,7 10 11 12	Yukon Achievement Tests (up to 2012) Yukon Achievement Tests (2012-2013 on) Exams (BC provincial exams) in math, language arts, and science Exams (BC provincial exams) in social studies Exams (BC provincial exams) in language arts

Source: Informant interviews and APPENDIX 4 in White, Peters, and Beavon (2009, pp. 164–165).

Some NAO/RAO informants noted several limitations and drawbacks of standardized tests as sources of information about Aboriginal students' academic skills. First, they do not capture the achievement of students who are absent on the day of the test or have been excused from assessment, or who have dropped out of the system in earlier grades. This gap is significant in the context of Aboriginal children's and youth's experience with provincial/territorial education systems. Second, tests can be subject to cultural bias and therefore provide an inaccurate measure of achievement of Aboriginal students. Cultural bias can appear in tests in the form of questions that depend on vocabulary, social experiences, or culture that are unfamiliar to some Aboriginal students, and can also include attitudes toward the testing experience itself (Philpott, Nesbit, Cahill, & Jeffery, 2004). Third, results are often reported in ways that portray Aboriginal students as failing to meet the expectations of the education system, rather than revealing the challenges they face in coping with a system that fails to meet their needs. Focusing on where children are failing is believed by many to reinforce existing stereotypes and contribute little on its own to motivate or inform change.

Standardized tests can also be used in ways that undermine the goals of testing. First, some provincial accountability frameworks use measures that are based on the percentage of students who meet

expectations or achieve proficiency on an exam. Research has consistently found that such measures lead educators to focus their efforts on students whom they can reasonably expect to move over the threshold for proficiency, particularly when outcomes are tied to funding (Neal, 2010). In doing so, they reduce the attention paid to students who are very weak or very strong, where additional resources are unlikely to affect whether their achievement exceeds the threshold. Second, when standardized test results are tied to strong incentives through accountability frameworks, they can lead schools and districts to increase their efforts to raise actual achievement, or to encourage low-achieving students to skip the exams (Figlio, 2006), teach to the test (Murnane & Papay, 2010), or simply cheat (Levitt & Jacob, 2003).

Holistic outcomes

Many NAO/RAO informants identified the measurement and use of holistic outcomes as critical components of an effective evidence-based approach; many provincial/territorial informants supported this view. Holistic measures that capture the social, physical, and spiritual well-being of individuals and communities throughout the life cycle are aimed at providing a more complete view of where Aboriginal students are succeeding and where they are falling behind. This more complete view is necessary to address the specific aspirations and needs of Aboriginal people (Canadian Council on Learning, 2009).

Very few measures that would meet the criteria for capturing holistic outcomes are either collected regularly or used widely in policy development. Many informants cited a report by the Canadian Council on Learning (2009) as providing an important first step in developing a holistic evidence base. This report develops an overall framework, as well as specific quantitative indicators of well-being that support that framework. Most of the indicators are constructed from the 2006 Census or related post-censal surveys, such as the Aboriginal Peoples Survey (APS) or the Aboriginal Children's Survey (ACS).

3.3 Assessing school environments

According to many NAO/RAO informants, strategies to create a more welcoming and supportive school environment for Aboriginal students are critical to student success. Specifically, the integration of Aboriginal content, history, culture, perspectives, and ways of knowing into the regular curriculum, as well as specialized programs and greater knowledge, understanding, and respect for Aboriginal communities and cultures on the part of teachers and principals, are thought to be critical. However, these efforts are not expected to provide a quick fix; steps taken to create improved school environments will pay off only over time, as attitudes change and relationships between schools and communities are strengthened. In the short to medium term, data that track these steps can be used to measure progress. An evidence-based approach to providing accountability to Aboriginal communities would therefore systematically document efforts to support change as well as progress toward improving school environments. Many NAO/RAO informants expressed frustration at their lack of access to information about, for example, the number, role, placement, and relevant skills of First Nation, Métis, and Inuit teachers; the number of students undertaking indigenous language instruction; expenditures on efforts to combat racism; expenditures on curriculum development to

integrate knowledge of Aboriginal histories, cultures, and rights into regular curricula; and knowledge and attitudes of educators.

3.4 Measuring early childhood development

Understanding the strengths and challenges of Aboriginal children when they first enter provincial/territorial education systems can inform policy development for the early school years, and provide an important benchmark for evaluating the effectiveness of subsequent education programs. Again, classroom-based assessments are likely to meet most or all of the needs of educators and, perhaps, of districts. However, an evidence-based approach to policy development at the district and provincial/territorial levels would include a standardized early-childhood assessment tool. Ontario, Manitoba, British Columbia, and, most recently, Alberta and Northwest Territories currently collect jurisdiction-wide data on early childhood development every second or third year in the form of the Early Development Instrument, or EDI (Janus, et al., 2007). Yukon collects jurisdiction-wide data in the form of the EDI on a yearly basis. EDI is constructed from a teacher-completed checklist on the school-readiness of each Kindergarten student and measures capabilities in five domains: physical health and well-being; social competence; emotional maturity; (English) language and cognitive development; and communication skills and general knowledge.

A number of important limitations of EDI as an indicator of school readiness for Aboriginal children have been noted (Li, D'Angiulli, & Kendall, 2007). EDI items that are based on achieving particular developmental “milestones” may prioritize skills valued by the dominant culture at the expense of skills valued by Aboriginal parents. For example, the focus on English language knowledge may inappropriately characterize bilingual children who speak both English and their traditional language at home as less “ready to learn” than unilingual children. EDI may be influenced by the stereotyping, misperception, and variations in cultural competence among the teachers who are conducting the assessments. Variation in measured early childhood development may reflect variation in teacher perception, as much as or more than true variation. Finally, the emphasis of EDI on concepts such as vulnerability and readiness to learn may impose a “deficit model” on Aboriginal children (Sam, 2011). While the EDI methodology can be and has been adjusted to address these issues, some stakeholders remain skeptical.

3.5 Measuring barriers to success

Many of the barriers to Aboriginal student success are well understood. These include the legacy of residential schools, and experiences with racism and marginalization in provincial/territorial education systems, which have led many Aboriginal families and communities to view schools with mistrust and anxiety (Battiste, 1995, p. vii; Royal Commission on Aboriginal Peoples, 1996). A relatively high incidence of social disadvantage — reflected in poverty, lone-parent households, low parental education, depression, and poor health (Spence & White, 2009; Richards, Vining, & Weimer, 2010), and high rates of mobility between schools (Beavon, Wingert, & White, 2009) — also create particular challenges. In general, informants felt that further evidence of the contributions of these barriers to current challenges would not be particularly helpful. However, some specific data about particular

barriers to success could contribute to developing strategies to overcome them. These include high rates of student absences from schools and the requirement that some First Nation students transition between education systems to complete their schooling.

Absenteeism

Regular absence from school creates a substantial barrier to academic success. Provincial and territorial informants cited the value of having accurate data about attendance, particularly at the local level, in order to identify where attendance issues are significant and to evaluate the success of programs designed to increase school engagement and participation. While attendance data are typically gathered at the school level, these data are not always reported to school districts, and rarely to provincial/territorial ministries. Elementary attendance data are collected at the school-board and provincial levels in Ontario. One school district cited the value of attendance data in identifying where new approaches to absenteeism were required, and several RAO informants identified attendance data as a critical input into their own efforts to understand and address school engagement from a community perspective. For example, information that attendance followed a seasonal pattern or increased at certain times of the month or year would help some communities understand the factors that influence school engagement so that they could take steps to address them. Some RAO informants reported that these data are not always accessible to them.

Transitions between school systems

Many First Nation children living on-reserve attend First Nation schools that struggle to attract and retain teachers and lack specialized staff to provide supports commonly implemented at the district and ministry levels in provincial/territorial systems (e.g., training, professional development, special-needs support, recruiting, and curriculum development) (Assembly of First Nations, 2010; Mendelson, 2008). As a result, students may face particular challenges when they transition from a First Nation elementary school to a provincial secondary school. The provincial school may have more resources but be a more intimidating environment (Mendelson, 2008). Some informants expressed frustration with current levels of cooperation and data sharing between First Nation and provincial/territorial schools in some communities. In some cases, students who were dropping out of school at this stage were not being identified and therefore could not be provided with support services to encourage them to continue their education; in other cases, students were arriving in provincial/territorial schools without the necessary preparation, and these gaps were not being identified and addressed. Similar issues of preparation affect transitions to postsecondary education (Atlantic Evaluation Group, 2010).

4. KEY EVIDENCE GAPS

Most informants agreed that, in future, data and evidence must move beyond describing current challenges to contributing to the process of identifying effective strategies. An evidence-based approach to policy development would integrate lessons learned from rigorous policy and program evaluation into strategic decisions about where and how resources should be invested in order to

realize the greatest possible gains in relation to clearly defined objectives. As described in Section 3.2, most NAO/RAO informants define these objectives to include holistic outcomes as well as standard academic outcomes.

Provincial/territorial and NAO/RAO informants noted that a wide range of existing policies, programs, and supports are critical to improving Aboriginal educational outcomes, as well as promising new approaches that have not been widely implemented. Formal quantitative evidence about policy and program effectiveness can contribute to policy development by supporting or discrediting both existing approaches and promising new approaches. In this section, we focus on a set of specific policies and programs to which new evidence could make an important contribution. These specific cases were chosen because they are controversial, costly, or both, and because the current body of evidence to assess their effectiveness is weak.

4.1 Provincial/territorial funding for elementary and secondary education

The issue of provincial/territorial funding levels for Aboriginal education at the elementary and secondary levels is largely overshadowed by controversies over funding levels in First Nation schools. However, the provision of funds to support programs and initiatives is a key issue in policy development. A number of informants expressed frustration that they were unable to secure stable long-term funding for many successful school- and district-level programs and initiatives, let alone to expand them to serve a larger number of Aboriginal students.

Table 2 summarizes provincial funding mechanisms for Aboriginal education and describes the methods used by provinces to monitor districts' use of these funds. Larger provinces tend to create broad frameworks for the use of these funds, while leaving specific programming decisions to school districts. In these cases, an evidence-based approach would incorporate evidence about the benefits of increased funding into decisions about overall provincial funding levels. In the only relevant Canadian evidence to date, Battisti, Campbell, Friesen, and Krauth (2011) use British Columbia administrative data to evaluate the effects of providing supplementary funding to support the language development of Aboriginal students. The results are discussed in more detail in APPENDIX II of this report, and show that reading skills of Aboriginal students improved substantially in school districts that took up these funds. This evidence is significant in that it provides a contrast to the widely held view that increased funding does *not* typically produce better outcomes (Hanushek, School resources, 2006).

While significant, this evidence derives from a single study based on a single jurisdiction, and it evaluates a particular funding supplement for language support rather than a grant to support Aboriginal education in general. These results therefore cannot support general conclusions about the potential effectiveness of increased provincial/territorial funding to support Aboriginal education in a broader context. Given the fundamental importance of the funding issue, further evidence of this type could contribute to discussion about funding decisions in large jurisdictions.

Table 2: Supplementary funding for Aboriginal primary and secondary education and funding accountability framework, by jurisdiction

Jurisdiction	Provincial funding	Provincial evaluation
British Columbia	Province provides targeted Aboriginal student supplement to districts.	Audits to ensure funds are spent on programming consistent with Ministry of Education policies are done annually in a small number of districts.
Alberta	Province provides Aboriginal student supplement to districts based on the number of self-identified Aboriginal students; districts are free to decide how to spend additional resources.	Districts are required to report annually on outcomes in relation to student performance targets, which are based on provincial data.
Saskatchewan	First Nations and Métis Education Achievement Fund provides funding for development and implementation of local programming.	Districts are required to report annually on strategies and outcomes based on a set of multiple indicators as part of the Continuous Improvement Framework.
Manitoba	Province provides targeted Aboriginal Academic Achievement grants to districts based on census population; Building Student Success with Aboriginal Parents program provides additional funding to support language and culture programs.	Informal review of program spending and perceived impacts on a three-year cycle
Ontario	Province provides an FMNI Education Supplement to all district school boards. The supplement includes a per-pupil amount based on census Aboriginal population estimates, funding for Native studies, and funding for Native languages. Project-based funding is available to district school boards through annual proposal submissions.	School boards report on annual activities through the Director's Annual Reports and are required to submit financial and enrolment figures to the ministry. Information evaluation is ongoing. Annual reporting on projects is a requirement of the transfer payment agreements.
Quebec	Province provides grants on a project-by-project basis.	Reports are completed by recipients on each project funded.

New Brunswick	Province provides funding for development of local programming through Tuition Enhancement Initiative.	New K–4 transition program will be evaluated formally. Other programs are evaluated informally.
Prince Edward Island	Province returns a share of FMNI students' tuition back to First Nation programming (since 2010-11).	Indicators to track performance over time are currently being developed.
Newfoundland and Labrador	Labrador school district provides funding to six locally developed programs.	Programs provide informal reports annually.
Northwest Territories	Schools receive funding for Aboriginal language- and culture-based programs based on the number of Aboriginal students.	An evaluation of the program is in progress.

Source: Informant interviews (Note: No informants from Nova Scotia, Nunavut, or Yukon accepted the invitation to provide input in either oral or written form.)

4.2 Early childhood education

Many informants emphasized the importance of providing or expanding early childhood education programs for Aboriginal children and expressed their understanding that the value of these programs has been clearly supported by a strong evidence base. This view of the evidence is widely shared and has significantly influenced provincial and territorial education policies, leading to dramatic increases in both spending and participation in early childhood education in most jurisdictions over the past ten years (McCain, Mustard, & McCuaig, 2011, p. 84). However, a careful review of the evidence in relation to Aboriginal students reveals a number of substantial gaps. Some of the most influential evidence about the effects of preschool programs comes from the Perry Preschool Project (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). A typical preschool program has a small fraction of the resources invested in this intensive, high-cost program. There is evidence that high-quality early childhood programming has a significant rate of return, but whether the more common, modestly funded programs would yield similar or even significant benefits is not well understood. Moreover, the substantial long-run benefits on the lives of disadvantaged students that are attributed to Perry Preschool are driven more by reduced rates of criminal activity than by the program's impact on educational attainment.

Some informants specifically mentioned the value of Aboriginal Head Start programs. However, doubt about the effects of Head Start programs on cognitive skill development has been cast by the results of recent, highly credible research showing that early improvements in cognitive skills fade out rapidly. The most recent US study of Head Start uses a nationally representative sample and a random assignment research design to produce the most authoritative estimates to date of its short- to medium-term impacts (Puma et al., 2010). The results show that Head Start's initial impacts on test scores for a sample of children who were three to four years old in 2002 are no longer significant

within one year of the children leaving the program. At the same time, several convincing studies demonstrate that Head Start does lead to lasting behavioural changes, such as improvements in high-school graduation rates, postsecondary continuation, crime reduction, health, and teen parenthood (Deming, 2009; Garces, Thomas, & Currie, 2002; Ludwig & Miller, 2007). Deming (2009) demonstrates that long-term health benefits are realized even among children whose initial improvements in cognitive skills disappear in the short to medium term.

Finally, recent reviews assessing the benefits of full-day Kindergarten conclude that the literature is so methodologically weak that it cannot be used to support strong claims (Cooper, Allen, Patall, & Dent, 2010; Lash, Bae, Barrat, Burr, & Fong, 2008).

Notably, no formal evaluation studies examine the effects of early childhood education programs specifically on the outcomes of Aboriginal children, or how these programs can best be designed to support their development in the specific context of Aboriginal cultures. Given the substantial cost of providing high quality programs for young children, better evidence in this area would be very valuable.

4.3 Community and parental engagement

Increasing parental and community engagement with schools emerged as one of the key priorities of NAO/RAO informants, who viewed both as an essential step toward improving outcomes for Aboriginal students. Some informants spoke of the need for a fundamental shift in attitudes at the community level. Others spoke of the need for schools to change in order to create more welcoming and accommodating spaces for Aboriginal families. Increased parental and community engagement and control have long been central to the educational vision advocated by Aboriginal organizations (Chabot, 2005). This emphasis on parental engagement receives clear support in the small number of studies that have employed strong research designs. These studies effectively disentangle the true causal effect of parental engagement from effects that arise because parents that are more engaged also tend to live in households that are more likely to be affluent, highly educated, healthier, and contain two parents (Nechyba, McEwan, Patrick, & Older-Aguilar, 1999). They consistently find that at-home parental involvement plays an important role in a child's education and that parental confidence and attitudes toward the school significantly affect their at-home involvement (Desforges & Abouchaar, 2003). Evidence on the effect of community engagement on children's education outcomes is much more limited (Nechyba, McEwan, Patrick, & Older-Aguilar, 1999).

Survey and qualitative research has painted a consistent picture of the barriers to engagement faced by Aboriginal parents: negative prior educational experiences, barriers to communication, limited cultural awareness within the school system, direct racism, and poverty and other family challenges (McDonald, 2009). However, there is very little evidence that would suggest how jurisdictions might most effectively contribute to overcoming these barriers. While a wide range of interventions have been suggested and pursued for enhancing engagement of Aboriginal parents (R.A. Malatest & Associates, 2002; McDonald, 2009), these proposals have rarely been subject to quantitative evaluation. The international literature on strategies for increasing parental behaviour is of little help. Desforges and Abouchaar (2003, p. 5) conclude that "evaluations of interventions [aimed at increasing parental involvement] are so technically weak that it is impossible on the basis of publicly available

evidence to describe the scale of the impact on pupils' achievement." Better evidence about what strategies could most successfully contribute to increasing parent and community engagement with schools could inform policy development in this area.

4.4 Language and culture programs

As with community and parental engagement, strengthening Aboriginal identity and culture within the school context was articulated almost universally as a top priority of NAO/RAO informants. Specific programs and practices advocated by many Aboriginal communities and organizations include the teaching of traditional languages, the inclusion of Aboriginal history and culture in the curriculum, experiential learning, bringing Elders into the classroom, and a host of other locally defined practices.

The direct and immediate goal of these activities is the preservation and transmission of knowledge considered essential to the development of their children by many Aboriginal families and their representative bodies (Assembly of First Nations, 2010; Métis National Council, 2009; National Committee on Inuit Education, 2011). Battiste (2000) argues that learning about Aboriginal perspectives is also essential for non-Aboriginal students. Language and culture instruction is also expected to yield important indirect benefits, including increased self-confidence, school attachment, and academic achievement among Aboriginal students, as well as reducing racism among non-Aboriginal students (Archibald J.-a. , 1995; McDonald, 2011)

A number of studies demonstrate a relationship between language and cultural *knowledge* and positive outcomes for young people (Hallet, Chandler, & Lalonde, 2007; Chandler & Lalonde, 1998), including academic achievement (Guèvremont & Kohen, 2011). Other studies demonstrate a relationship between *participation* in language and cultural instruction and positive academic outcomes (Wright & Taylor, 1995; Taylor & Wright, 2003). Longitudinal studies of participants have found that Aboriginal students experience better academic outcomes after participating in language and culture instruction (Feurer, 1993; Stiles, 1997).

These findings may reflect a positive causal effect of language and culture instruction on academic achievement. However, a positive relationship between cultural knowledge and other academic outcomes could just as easily be explained by unobserved differences across students in academic effort or aptitude. Knowledge of one's traditional language is a learning outcome much like knowledge of mathematics, and it would not be surprising to find that students who are more skilled in one subject are more skilled in other subjects. In general, such a relationship can be attributed to common factors — stable home life, parental involvement, natural ability, teacher quality, etc. — that affect both traditional and academic learning outcomes. Similarly, students who participate in these programs may be quite different from those who do not, and schools that offer these programs may be quite different from those that do not, so evidence about the relationship between program participation and academic outcomes is also open to interpretation.

An exhaustive review of the literature by Demmert and Towner (2003) identified only two experimental or quasi-experimental studies that provide clear evidence of the causal effect of culturally based instruction on academic outcomes. The most convincing and well-known is Tharp's

(1982) study of the Kamehameha Early Education Program (KEEP), a reading program for Hawaiian children that incorporated elements of indigenous Hawaiian culture. Tharp found clear evidence of positive effects of the program on reading test scores. Lipka and Adams (2004) found that a culturally-based mathematics unit provided to Yup'ik students in Alaska had positive achievement effects.

While highly credible, neither of these studies is set in a Canadian context, and both consider programs that incorporate culturally based material in a core academic subject rather than programs that directly teach language and culture. Further evidence in this area could help to bridge the gap between the standard academic goals of provincial/territorial education systems and the holistic goals of many Aboriginal organizations, and advance the priorities of both.

Aboriginal teachers and administrators

Many NAO/RAO informants identified the development and recruitment of Aboriginal teachers and school administrators as a top priority. Increasing the number of Aboriginal teachers would directly benefit those Aboriginal young people who acquire teaching credentials and would further the core goal of Aboriginal self-determination in education (Assembly of First Nations, 2010; Royal Commission on Aboriginal Peoples, 1996). Moreover, Aboriginal students may benefit from the presence of Aboriginal teachers in the classroom, to the extent to which they serve as positive role models, reduce both teacher bias in assessment and student perception of bias, and facilitate a generally more constructive and culturally relevant relationship between the student and the school. Aboriginal teachers and administrators may also have a positive influence on non-Aboriginal colleagues and students.

Quantitative evidence demonstrates some of these benefits in the US context. Dee (2004) found that academic achievement was higher when a student was from the same racial group as his or her teacher. Downey and Pribesh (2004) and Dee (2005) found that white teachers evaluated the behaviour of black students less favourably than did black teachers. Steele and Aronson (1995) found that the exam performance of even high-achieving black students was undermined when negative stereotypes about their group were invoked. Evidence of similar effects in the specific context of Aboriginal education could lend weight to calls for greater emphasis on training and retaining Aboriginal teachers.

Qualitative research on the experiences of Aboriginal teachers provides several additional insights that can inform both policy and quantitative research. Aboriginal teachers report that they are regularly expected by non-Aboriginal teachers and administrators to deliver Aboriginal cultural content in which they lack appropriate expertise and which would best be delivered by an elder or outside consultant (St. Denis, Bouvier, & Battiste, 1998, p. 44). They also report that context is important to their effectiveness, both in terms of support by administrators and non-Aboriginal educators and in terms of the presence of Aboriginal peers (St. Denis, Bouvier, & Battiste, 1998, p. 49). Finally, racism remains an issue: a majority of Saskatchewan Aboriginal teachers surveyed by McNinch (1994) reported exposure to discrimination or racism, but few senior administrators reported being aware of such incidents.

5. SUMMARY

An evidence-based approach to identifying the needs of Aboriginal students, strategic decision making, and providing accountability requires, at a minimum, reliable and consistent data that identify on- and off-reserve First Nation, Métis, and Inuit students, accurately report a basic set of educational outcome measures, and are collected frequently through respectful and transparent methods that contribute to an environment of trust. Current surveys administered by Statistics Canada do not meet these minimal requirements. Some provinces have developed administrative data that go a long way toward doing so. However, a number of jurisdictions that educate substantial numbers of Aboriginal students have not yet established standardized systems of identifying them and measuring their success. Without these, an evidence-based approach to accountability and identifying student needs is a non-starter, and strategic decision making must be based on evidence from other jurisdictions and populations. Improving the quality and availability of provincial/territorial administrative and academic assessment data must therefore become a top priority.

Data describing levels and trends of holistic outcome measures, viewed by many Aboriginal organizations as important reflections of their values and aspirations, are rarely incorporated into policy discussions and decisions. The capacity of provinces/territories to do so is currently very limited. Expanding this capacity would contribute substantially to jurisdictions' ability to satisfy the wishes of Aboriginal parents and communities to monitor the social, physical, and spiritual well-being of individuals and communities throughout the life cycle. Data that could be used to document the specific programs, services, and school characteristics that contribute to a welcoming school environment and support a positive Aboriginal identity would also enable organizations and communities to monitor the progress of schools in relation to these key priorities.

Given the weakness of current data, it is unsurprising that there exists very little evidence based on rigorous quantitative evaluation of the effects of *any* policies or programs on the outcomes of Aboriginal students, let alone evaluations that distinguish between on- and off-reserve First Nation, Métis, and Inuit students. Specific areas in which evidence would be particularly useful include two standard education policy issues. First, given the widespread view that early childhood education programs are key to improving outcomes for Aboriginal students, the substantial number of resources that these programs require, and the shortage of rigorous quantitative evidence about the effectiveness of existing programs for Aboriginal children, efforts to generate such evidence would be valuable. Second, the perennial discussions about appropriate levels of funding take on particular importance in the context of Aboriginal education, where current levels of programming are clearly not meeting expectations in terms of results. Provincial/territorial policy-makers may be very reluctant to increase funding in the absence of clear evidence that doing so will result in tangible improvements with respect to core educational goals. Again, efforts to generate this evidence would be valuable.

Other areas where evidence would be particularly useful include two issues that are more specific to Aboriginal education. First, given the widespread perception that some Aboriginal parents and communities are disengaged from the educational system, the demonstrated importance of this engagement to student success, and the shortage of evidence about how best to increase parental and community engagement, evaluations that demonstrate the effectiveness of specific interventions to do so could make a very helpful contribution. Second, many Aboriginal organizations are frustrated

at what they perceive to be the lack of responsiveness of provincial/territorial education systems to Aboriginal students' needs for culturally rich, welcoming environments. These organizations consistently advocate for more programs that reflect and support strong, positive Aboriginal identities for both individuals and communities, and argue that these programs are essential to both their academic success and success as defined by a wider set of holistic outcomes. While jurisdictions support a wide variety of such programs that are considered highly successful, these programs often struggle to secure long-term funding and are rarely expanded to meet the needs of a greater number of students. Evidence from rigorous evaluations of the impact of effective language and culture supports on academic outcomes, including Aboriginal teachers in the classroom, could potentially shift opinion on this issue and influence the direction of policy in this contentious area.

PART 2

STRENGTHENING DATA AND EVIDENCE



The goal of the second part of this paper is to identify specific, cost-effective steps that provinces and territories can take to address a number of key data gaps and to support the process of creating new and better evidence to address key policy issues. It begins by outlining ways that jurisdictions can develop and improve their administrative and assessment data in order to overcome current data limitations. It then outlines a number of steps that individual provinces and territories can take to support the creation of a stronger evidence base. Finally, it discusses the importance of participating in broader partnerships to develop a culture of evaluation and dissemination that will support and leverage efforts to create, share, and use evidence to improve outcomes for Aboriginal students across Canada.

1. STRENGTHENING ADMINISTRATIVE DATA

Pan-Canadian survey data from the new NHS, as well as APS, PISA, and PCAP are important sources of relevant information. However, as discussed in Part 1, these surveys include a limited range of outcomes measured, are not collected annually, are subject to survey-response bias, and employ sampling procedures that capture a fairly small number of Aboriginal people, especially at the provincial/territorial level. These features limit the usefulness of these surveys in targeting programs and services for Aboriginal students, providing accountability with respect to provincial/territorial and school district decisions, and conducting analysis that can inform strategic decision making. While these limitations could be overcome by increasing survey frequency, scope, and sample size, a strategy to develop the capacity of provincial/territorial administrative and assessment data can be a cost-effective means of meeting a number of data needs. Through their normal administrative operations, provinces and territories collect a wealth of information about the entire population of students attending public schools, their families, and their communities, and provincial/territorial education systems administer a variety of assessments of student achievement. By capturing these data and assembling them in useful ways, provinces and territories can turn them into valuable resources for generating evidence.

A number of jurisdictions have taken important steps toward evidence-based policy development in Aboriginal education by collecting and using administrative data to quantify gaps between different groups and produce aggregate trends in educational outcomes. By providing an accurate picture of how Aboriginal students are doing, this information can help communities to hold governments accountable, help provincial and territorial education ministries to hold school districts accountable, and illustrate where progress is and is not being made. A number of informants reported that when accurate data became available, they “changed the conversation” in a productive direction. The availability of these data has also enabled a small number of quantitative evaluations of policies and programs related to Aboriginal education.

This section outlines specific steps that jurisdictions can take to improve the collection, reporting, and accessibility of provincial/territorial data in order to provide a foundation for effective, strategic policy development that is informed by evidence. These are described below.

Collect a standardized, informative Aboriginal identifier.

An evidence-based approach to policy development must be based on an accurate, informative, and consistent measure of Aboriginal identity. In order to support accountability to different groups and ensure the delivery of culturally relevant learning opportunities, measures of Aboriginal identity must distinguish on- and off-reserve First Nation, Métis, and Inuit students. Consistency of data within jurisdictions requires that the procedures used to collect Aboriginal identifiers, including the wording of questions posed to students and/or their parents, be standardized across schools and school districts. A standardized approach *across* jurisdictions would facilitate policy- and program-evaluation strategies based on comparisons across provinces and territories.

Creating data that include accurate Aboriginal identifiers requires that Aboriginal parents and students agree to self-identify. Addressing issues that stand in the way of their willingness to do so must therefore be an important component of an effective data and evidence strategy. These issues relate to general mistrust and dissatisfaction with perceived stereotyping and streaming of Aboriginal students, and can only be addressed over time as jurisdictions continue to work toward improved relations with Aboriginal communities. Providing parents directly with accurate and transparent information about the purpose of collecting Aboriginal identifiers, the ways in which the data will be used, and how the data could result — or have in the past resulted — in beneficial outcomes would be a useful step in this process.

Investigate changes in rates of Aboriginal self-identification and interpret trends in outcomes in light of these changes.

When Aboriginal identifiers are used to track progress in outcomes over time or to undertake program and policy evaluation, results are sensitive to changes in patterns of self-identification. These changes may be driving observed trends in outcome measures and obscuring true underlying trends. Jurisdictions that maintain suitable longitudinal student records can document trends in self-identification and decompose them into changes in the proportion of students who live on a First Nation reserve, who do not live on a reserve but always self-identify as Aboriginal, and who self-identify only in some years. Where possible, changes in the latter two groups can be further broken down into changes among off-reserve First Nation, Métis, and Inuit students. These patterns can provide important first clues to the nature and causes of any shifts within the self-identified Aboriginal population, and their implications for interpreting trends in outcomes.

Maintain consistent student identification numbers that permit the construction of longitudinal student records.

Longitudinal records that link students' data across their years in the education system are necessary to construct measures of grade progression, educational attainment, and skills development, and to facilitate strong evaluation methodologies. Currently, only some provinces and territories maintain these types of records.

Improve collection and reporting of measures of educational attainment.

Provinces/territories can take several steps that would help to address the weaknesses in data on elementary- and secondary-school attainment described in Part 1. First, jurisdictions can supplement census data by reporting attainment measures separately for First Nation, Métis, and Inuit students. Second, information about high-school completion rates can be supplemented with administrative data characterizing the educational attainment of those who do not graduate. Several informants reported anecdotally that some Aboriginal children drop out of school at a very young age. Better data about this behaviour can help identify the target age at which interventions to prevent dropout should be targeted. Third, students who attend First Nation schools that do not extend through Grade 12 may choose to end their education rather than make the transition into the provincial/territorial system. Jurisdictions can coordinate with First Nation schools to increase the accuracy of educational attainment measures (and to assess the need for coordination around this problem). Fourth, some informants expressed concern that talented Aboriginal high-school students may be disproportionately streamed out of math, science, and university preparatory courses; these informants indicated that obtaining data that would illustrate how and where students are being streamed was a priority. Similar concerns were expressed about the proportion of Aboriginal students graduating with non-standard high-school diplomas. These outcomes can be easily tracked and reported in jurisdictions that maintain longitudinal records that include an Aboriginal identifier, enrolment by class, and type of diploma awarded.

Administer standardized tests in numeracy and literacy to all students in multiple grades on an annual basis.

Despite their limitations, assessments of academic skills administered by provincial/territorial education systems are essential sources of data on academic achievement. In order to track progress at aggregate levels, make comparisons across regions and school districts, and conduct certain types of formal program evaluation, large-scale standardized tests are required. These tests should be administered at various points in a student's education in order to identify critical stages at which Aboriginal students may require particular support and evaluate the effects of policy and programs on students' academic progress. Assessment data collected on an annual basis can support a much broader range of evaluation strategies than data collected intermittently can.

As jurisdictions develop their capacity for and emphasis on evidence-based decision making in Aboriginal education, data-quality issues will become more important. Three issues stand out in the context of standardized tests. First, issues of cultural bias in testing instruments must be addressed. Second, aggregate achievement results cannot provide reliable guidance to policy-makers if they are based on only a small number of students. In areas where Aboriginal students are in the minority, testing only a sample of students, rather than the student population as a whole, will produce very unreliable information. Third, if accountability based on test scores becomes "high-stakes" for educators, schools may engage in practices that are counterproductive, such as excusing weak students from tests or encouraging them to be absent from school on test day.

The importance of standardized testing to policy and program evaluation receives very little attention in public discussions of its value. Jurisdictions that are committed to developing evidence-based

strategies aimed at increasing literacy and numeracy skills among Aboriginal students should continue to support the key role played by standardized test results and should engage stakeholders so that both the benefits and limitations of standardized testing are understood. Opposition to standardized testing may be overcome in some cases if jurisdictions increasingly demonstrate its value by incorporating test results into policy development in a constructive, transparent way.

Develop and administer assessment tools to measure the achievement of Aboriginal students who do not participate in standardized tests.

A substantial proportion of Aboriginal students do not participate in standardized assessments of numeracy and literacy skills. For example, the non-participation rate of Aboriginal students in British Columbia is more than twice as high as that of non-Aboriginal students (Friesen & Krauth, 2010). Informants reported that students may be kept home on the day of the exam by parents who think that their child is not ready. Some students may be excused from the exam by schools because they have special educational needs or are performing at a very low level of achievement. An evidence-based approach to improving these students' academic skills requires data that accurately reflect their achievement levels, though this is inherently difficult given the challenges in identifying these students and the implied distrust of assessments. Jurisdictions should therefore undertake, in collaboration with their Aboriginal partners, to develop and administer appropriate instruments for assessing academic progress among very low-achieving and special-needs students who do not participate in standardized tests. These instruments should be based on external assessments of student performance in order to avoid variation arising solely from differences in teachers' perceptions and norms.

Capture the full range of standardized test results in reported statistics.

Jurisdictions that measure achievement for Aboriginal students often report the proportion of students whose results exceed a given threshold (sometimes associated with "meeting expectations"). This statistic can obscure important progress or fail to identify effective programs if student outcomes improve but do not cross over the defined threshold. By supplementing this reported measure with the average achievement of Aboriginal students, jurisdictions can provide a more accurate and complete picture of achievement trends and ensure that evaluations based on these data do not show a lack of progress in cases where progress may in fact be substantial.

Conduct and report annual assessments of early childhood development of Kindergarten students.

Early childhood assessment data can contribute to evidence-based policy development in two ways. First, assessment results can be used to track progress in relation to the expansion of early childhood education programs. Second, they can provide an important baseline against which the effectiveness of programs directed toward improving learning in the higher grades can be gauged. A reliable tool for measuring early childhood development that is accepted by stakeholders should be employed in a consistent way on an annual basis to track the progress of Aboriginal students. EDI is currently used by several jurisdictions for this purpose, but is viewed by some stakeholders as biased and unreliable. Efforts should be made to address these concerns or reach consensus about an appropriate measurement instrument.

Link education records to other sources of administrative data in order to capture holistic outcome measures.

Addressing the priorities of Aboriginal communities requires that an evidence-based approach to policy development incorporate a broader, more holistic set of outcome measures into tracking progress and evaluating programs. The quantitative indicators developed by the Canadian Council on Learning (CCL) (2009) can be broken down by province/territory/region, and updated when data from the 2011 Census and APS become available. Comparisons of outcomes between the 2006 and 2011 Census years can then provide important insight into where progress is and is not being made at the provincial/territorial level. However, because they are available only every five years at best, and cannot easily be linked to provincial and territorial data systems, census- and APS-based measures cannot readily be incorporated into evaluations of specific policies and programs.

Once again, provincial/territorial administrative data can be developed to complement other sources of data. Jurisdictions can expand the scope for tracking progress and assessing the effects of policy and programs to include a broader set of outcome measures by linking administrative records from outside the education system to student records. Administrative data from the health-care, social-assistance, and justice systems, for example, would provide opportunities to assess whether improvements to education programs and policies for Aboriginal students are meeting the long-term needs of individuals and communities. APPENDIX II presents an example of how this can be done in the case of students with mental health disorders. There would be significant privacy and research ethics considerations with such a proposal (any consideration to data linkage would need to adhere to provincial privacy legislation), and an honest and transparent engagement with the Aboriginal community would be necessary throughout the process.

Collect and report attendance data

As discussed in Part 1, attendance data can potentially provide information on student engagement that is useful both to communities that are trying to understand and address school engagement issues and to educators who are trying to provide engaging programs and school environments. Jurisdictions can modify administrative reporting requirements to ensure that locally held data on student attendance are compiled centrally and are made available to communities and to external researchers at different levels of aggregation, upon request.

Develop and report school environment indicators.

Jurisdictions can take several steps to improve accountability to Aboriginal parents and communities in relation to long-standing and clearly articulated priorities for improving schools' ability to deliver supportive, culturally relevant education. More extensive documentation of the number, location, and relevant skills of First Nation, Métis, and Inuit teachers and administrators would provide opportunities to assess progress toward the goal of ensuring that Aboriginal students have valuable mentors and role models. For example, Manitoba now documents the self-reported ancestry, knowledge of Aboriginal languages, and educational background of all teachers who self-identify as Aboriginal (Manitoba Education, 2009). The number of Aboriginal students graduating with teaching credentials in a jurisdiction is also an important indicator of progress toward this goal.

Reports of the value of resources devoted to ensuring that all students and teachers have accurate basic knowledge of a broad spectrum of Aboriginal cultures, history, and rights would inform stakeholders of the efforts being taken to achieve this goal. Progress toward achieving it can be measured by assessing students' knowledge in these areas. For example, Saskatchewan has not only incorporated treaty education as part of the required curriculum at every level of K–12 education, but is also testing Grade 7 students on their knowledge (Rohr, 2010). Availability of traditional language instruction can be reported both in terms of the number of schools offering instruction and in terms of enrolment and assessments of language acquisition undertaken and reported. Knowledge and attitudes of teachers and administrators can be measured by surveys, as can students' experiences with racism, stereotyping, or the presence of a welcoming environment. Multi-year quantitative evidence on student engagement would be useful for determining when and where progress is being made.

2. STRENGTHENING EVIDENCE

While simple gaps and trends can provide information about the overall effectiveness of the bundle of policies, programs, and services that are being provided by provincial and territorial school systems, they reveal little about the effectiveness of specific policies and programs. Credible evidence about what works can supplement experiential knowledge by demonstrating its effects in ways that can be observed by all, thereby making it possible for those who do not have direct experience with alternative policies and programs to make more informed comparisons among them. Careful evaluation can help those with differing perspectives find common ground by narrowing the range of possibilities that are consistent with the evidence. Finally, the results of rigorous, objective evaluations can challenge prevailing consensus opinions held by those whose judgments and views are influential, and suggest new and unexpected avenues for progress or confirm the value of existing programs.

Part 1 reached the general conclusion that, in light of the very limited body of evidence about the effectiveness of education policies and programs to improve outcomes for Aboriginal students, quantitative evaluation of any and all relevant policies and programs would contribute to evidence-based policy development. Specific areas where strong evidence would be particularly helpful were also identified. These include the effects of language and culture programs on academic achievement; the effectiveness of alternative methods of increasing parent and community engagement with provincial/territorial schools; the short- and long-term contributions of various early-childhood education programs to children's development; and the effects of Aboriginal teachers on student outcomes. This section outlines concrete steps that jurisdictions can take to facilitate rigorous, quantitative research that, over time, would address these key evidence gaps.

2.1 Designing evaluation into programs

Formal quantitative evaluations aim to measure the causal effect of a “program” (intervention, policy, or event) on a set of outcomes of interest by comparing the outcomes of program participants to those of a comparison group of non-participants. For this comparison to be meaningful, the comparison group must be similar to the participant group so that any observed difference in

outcomes can be attributed to the program effect. “As-is” evaluations use existing administrative and survey data to evaluate the effects of policies and programs that have already been implemented on a large scale. This approach takes advantage of specific features of programs, or the timing of their implementation, to define program and comparison groups that are similar. Currently, researchers look for opportunities for as-is evaluations that come about by chance, when programs happen to have features that create comparable program and comparison groups. Provinces and territories can intentionally create new and more frequent opportunities for policy and program evaluation, at little or no cost, by intentionally designing and implementing new programs in ways that satisfy the conditions for evaluation (Smith & Sweetman, 2010). Evaluation can be “designed into” the structure or implementation of programs in several different ways.

Introduce a random element into program access.

The simplest way to design evaluation into program structure is to introduce a random element into program access. For example, when the number of students wishing to enrol in popular special programs exceeds the number of available spaces, school districts could allocate spaces using a random draw. Enrolment “lotteries” — similar to those already used by some districts to allocate access to oversubscribed programs such as French Immersion and Montessori — ensure that students who gain access to the program do so by chance. There is therefore no reason to expect that those in the program differ from unsuccessful applicants to the program in systematic ways. If access is instead allocated on a first-come, first-served basis, for example, those who gain access will be those who are both most willing and most able to spend time waiting in line. These parents may differ from other parents in ways that affect student outcomes directly, so a comparison of outcomes between those in the program and those not in the program will capture both these parenting differences as well as the true program effect.

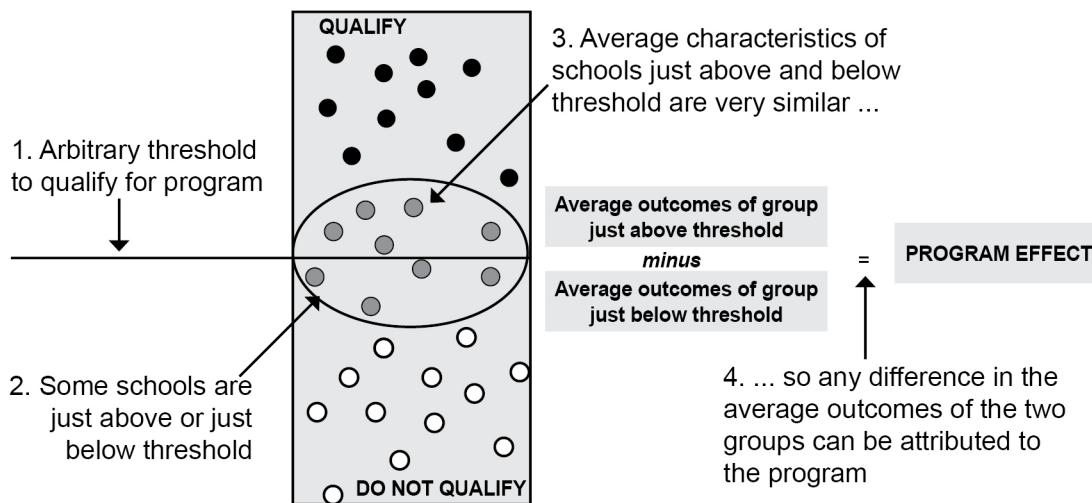
A number of jurisdictions are considering establishing or have plans under way to establish Aboriginal Choice Schools in urban areas, which specialize in offering environments designed to support Aboriginal students. For example, discussion of an Aboriginal-focused school in Vancouver has highlighted the importance of incorporating a holistic approach to children’s spiritual, emotional, physical, and intellectual development (Archibald, Rayner, & Big Head, 2011). If Aboriginal Choice Schools prove popular, a random admission policy would create a superb opportunity to evaluate their effectiveness — providing policy-makers with important evidence that could inform decisions to expand these programs, improve them, or move forward with greater caution — and could inform parents’ decisions about where to enrol their children.

Allocate program access based on an observable ranking of students or schools

Random assignment to programs is not always politically feasible and is considered by some to be ethically questionable. An alternative mechanism that can also satisfy the requirements of program evaluation is to rank candidates and allocate program space on the basis of some “observable” measure. Candidates whose rankings are very similar but are on opposite sides of the threshold for admission are likely to be similar, on average. For example, suppose that a particular program is only available to schools where more than 35 per cent of students self-identify as Aboriginal. As illustrated

in Figure 1, this threshold criterion is at least somewhat arbitrary and therefore provides a form of randomization: schools that are just above the threshold are fundamentally no different from schools that are just below the threshold. The program can therefore be treated as approximately randomly assigned within a subset of schools close to the threshold. Comparing the difference in outcomes across these two groups can provide reliable estimates of the program effect (Lee & Lemieux, 2010; Smith & Sweetman, 2010, pp. 75–77).

Figure 1: Using thresholds to measure program effects



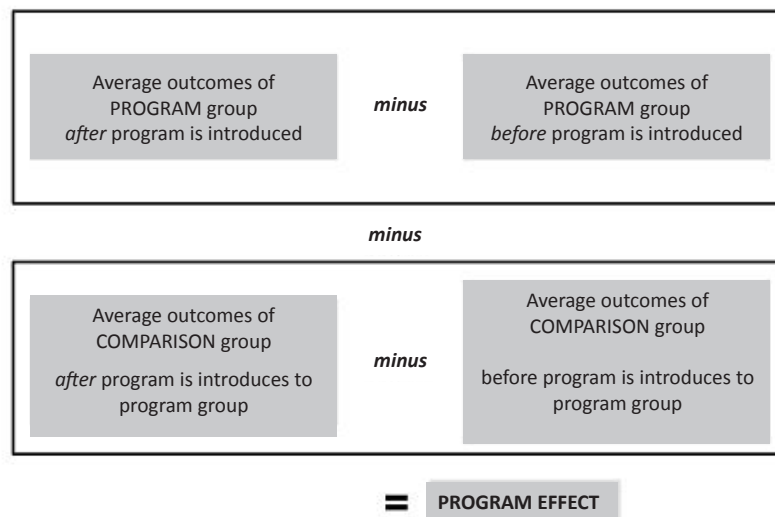
In the example of determining which students will be accepted for enrolment at popular Aboriginal magnet schools, students could be ranked on the basis of the distance from their home to the schools or on an index of vulnerability as measured by a child-development instrument, for example. In APPENDIX II, Example 2 presents a discussion of how a threshold could be designed into the implementation of new early childhood education programs, such as full-day Kindergarten, at little or no cost to government, in order to make possible highly credible evaluation studies that would address one of the key evidence gaps identified in Part 1.

Roll out implementation of new programs over time.

Major programs are often implemented in stages, which can provide an opportunity for evaluation. Suppose a new program is introduced in half of the schools in a district in a given year, and the schools that are chosen are those in which district officials think students are in greatest need. The program effect cannot be measured as the difference in average outcomes between program schools and non-program schools (the cross-sectional difference) because these two groups of schools are not similar (one group has students in greater need). It also cannot be measured as the difference in average outcomes in the program schools before and after the program's introduction (the time difference), because other important factors may also have changed over the same time period. The difference-in-differences approach (Smith & Sweetman, 2010, pp. 72–75) starts out with the before-and-after change in outcomes in the program schools, and subtracts the before-and-after change in the non-

program schools. The resulting estimate of the program effect excludes any factors that differ across the two groups of schools but don't change over time (e.g., the percentage of students in need), as well as any factors that change over time in the same way in both sets of schools (e.g., district levels policies). The program is introduced in only one set of schools, *and* it changes over time, so the program effect is included in the estimate. Figure 2 illustrates this approach.

Figure 2: The “difference-in-differences” approach to measuring program effects



Example 2 in APPENDIX II discusses this approach in the context of implementing universal programs such as full-day Kindergarten. Example 3 in APPENDIX II presents an example of how this strategy has been used to learn about the effects of Aboriginal program funding, another key evidence gap identified in Part 1.

2.2 Facilitating evaluation by researchers

Provinces and territories do not maintain the capacity to undertake the kind of rigorous, quantitative program evaluation that can produce highly influential results. If opportunities to undertake strong evaluation studies are available to academic researchers, they will in many cases undertake the work at little or no direct cost to governments. Jurisdictions can take several additional steps to facilitate and encourage evaluation by external researchers.

Maintain and document comprehensive, consistent administrative data.

In order to be useful to external researchers, administrative data must be carefully documented and maintained in a consistent way over time. Jurisdictions can attract interest and facilitate useful evaluations by collaborating with researchers to establish and maintain research-ready versions of administrative records.

Create links between sibling records in administrative data.

One of the main challenges researchers face when trying to create valid program and comparison groups is the fact that families contribute different resources to their children's educational outcomes. If these families also make different program choices, it is challenging to distinguish between the effects of the programs and the effects of family resources. To overcome this problem, some evaluation strategies base estimates on comparisons between siblings. If one child is exposed to a program and his or her sibling is not, a comparison between their outcomes will capture the effect of the program but not the effects of family background, since these are likely to be the same for both children. Example 1 in APPENDIX II provides an example of an evaluation study that uses this approach to estimate the effects of children's mental health disorders on their long-term educational and other outcomes. Some jurisdictions may be able to establish sibling indicators in education records directly. In other cases, siblings may be identified through personal health numbers in administrative health records; these sibling identifiers could then be linked to education records. An important caveat to keep in mind with this approach is that siblings in some vulnerable families may not experience similar family circumstances because of changes over time in family structure arising from divorce, foster care, living with grandparents or other relatives, etc.

Facilitate evaluation studies by external researchers.

Jurisdictions can encourage researchers to engage in policy-relevant research by ensuring that administrative data-access protocols incorporate international best practices with respect to documentation, speed of access, cost, and data archiving. The requirements of academic publishing and career considerations make academic researchers' willingness to use administrative data to address questions of policy interest very sensitive to these factors. Researchers are also subject to increasing competition for their attention from data-rich jurisdictions in the United States and elsewhere. Providing external researchers with low-cost access to well-maintained administrative data within a reasonable and guaranteed time frame can effectively leverage provincial/territorial resources to increase policy and program evaluation.

In order for the efforts of external researchers to produce meaningful evidence that is viewed as valid within Aboriginal communities, research projects using administrative data should engage with Aboriginal organizations and consult them throughout the research process. The use of administrative data that measure the behaviour and outcomes of Aboriginal people for evaluation purposes without their express consent is inconsistent with the ethical principles established by some organizations, including ownership, control, access, and possession (OCAP) principles that have been adopted by many Aboriginal organizations (First Nations Centre, 2007). Given the requirements of current Freedom of Information and Protection of Privacy legislation, provincial/territorial data-access protocols are unlikely to be fully compliant with the OCAP principles. In the case of university-based researchers, university research-ethics boards assess and vet administrative data requests, providing a layer of review that may go some way toward satisfying the OCAP principles. External requests for data from other researchers are not subject to this form of ethical review. Provincial/territorial governments could expand their current consultation processes with Aboriginal organizations to include interested researchers in discussion of the collection, use, and dissemination of results based on administrative data.

Share knowledge of programs, policies, and communities with external researchers.

Jurisdictions can undertake to share with external researchers their detailed and often undocumented knowledge of the history, structure, implementation, and/or peculiarities of programs or policies of interest. Changes to policies and programs, thresholds for eligibility, or unrelated events that generate variations in how or to whom they are applied can all be used to define valid program and comparison groups and create fruitful evaluation opportunities. When these changes are not evident to outside observers, as is sometimes the case, opportunities for as-is evaluations can be obscured. Jurisdictions can also share with researchers their knowledge of and experiences with Aboriginal communities and organizations in order to encourage and support effective relationship building that will lead to meaningful and respectful evaluation work.

Work toward standardizing data across jurisdictions.

The primary advantage of harmonizing administrative data collection across jurisdictions is to allow meaningful cross-jurisdictional comparisons. Provinces/territories may find it useful to compare their own progress to progress in other jurisdictions. The capacity to compare outcomes across jurisdictions would also create valuable opportunities to implement difference-in-differences strategies to evaluate programs that are implemented universally within provinces. It should be noted that while the availability of pan-Canadian indicators facilitates comparisons, it does not in any way imply that a pan-Canadian approach to policy development should be adopted. Rather, *differences* across jurisdictions in policies and programs, combined with consistency in data, can facilitate evaluation.

Support pilot evaluations.

The scope of as-is evaluation approaches to evaluation is limited to initiatives that policy-makers have already committed to on a broad scale. Part 1 identifies several policy areas in which better evidence can contribute substantially to policy discussions of key initiatives that have not yet been widely implemented. These areas include the impact of effective language and culture programs on academic achievement and the effectiveness of strategies to increase parent and community engagement with schools. In these cases, pilot evaluations — in which evaluators introduce the program in an evaluation context and specifically for evaluation purposes — can provide this important evidence.

Pilot evaluations that involve custom data collection may also be preferred to as-is evaluations in some contexts because they can be designed more easily in accordance with specific research protocols and may therefore be better able to satisfy OCAP and other ethical requirements.

Because they are custom-designed, pilot evaluations may be implemented on a small or large scale, can collect custom data on outcomes of interest, and can be designed to ensure comparability of the program and comparison groups. The simplest form of pilot evaluation is a randomized controlled trial (RCT) in which the program is provided to a randomly selected group of eligible students, or in a randomly selected group of schools. Random selection ensures that participants and non-participants are very similar in statistical terms (Smith & Sweetman, 2010, p. 64). Example 4 in APPENDIX II describes a pilot evaluation of a parental engagement program in France, where the program is offered in a randomly selected group of schools.

In the education context, however, the “gold standard” of randomization is, in many cases, not met. A student’s participation in a pilot program usually depends on both the school’s or the district’s choice of when and where to offer the program and the student’s or parents’ choice of whether to participate when given the option. If participants and non-participants are different — and there must be some difference that explains why some students participate and others do not — then comparing outcomes of participants with non-participants is likely to provide a biased estimate of the program effect. This bias can be reduced by various methods (e.g., matching, regression analysis) to construct comparison groups that are similar on the basis of observed characteristics. In these ways, pilot evaluations can yield credible evidence when they are implemented in ways that meet the requirements of actual education contexts.

Provinces or territories can contribute to addressing key evidence gaps by commissioning and funding pilot evaluations of promising initiatives. However, a broad partnership approach would have a number of advantages. The next section outlines these advantages, as well as other benefits of participating in partnerships to create and share evidence that can inform strategic decision making in Aboriginal education.

3. MOVING FORWARD: COLLABORATING THROUGH PARTNERSHIPS AND NETWORKS

The creation of credible evidence and its incorporation into the development of effective education policies to support the success of Aboriginal learners requires the collaboration of a number of groups. First, Aboriginal communities and organizations must be included at all stages of the process. Communities hold essential knowledge about local conditions that affect learning, and about community priorities for Aboriginal learners. Community buy-in can contribute to the quality of data on Aboriginal self-identification, encourage participation in pilot evaluations, and validate the results. Aboriginal organizations have already undertaken a great deal of work to develop holistic education models, establish protocols for research ethics, create membership lists, identify promising practices, and so on. These important foundational elements can be incorporated into a comprehensive data and evidence strategy. More fundamentally, program innovation and evaluation that does not have the support of communities and organizations may further alienate some Aboriginal people from provincial/territorial education systems, undermining the initiative’s goals.

Second, academic and private-sector researchers can advise, inform, and execute key components of the overall strategy to create and use data and evidence to develop policies and programs. Third, provincial and territorial governments and school districts can identify policy priorities, facilitate data access, and contribute resources, and must play a key role in the uptake of evidence into policy development. Aboriginal Affairs and Northern Development Canada, Statistics Canada, Health Canada, and other federal government departments may choose to collaborate in some cases, bringing resources and supports for various activities.

This collaboration may be coordinated through a number of short- or long-term partnerships between various groups and agencies around specific issues or initiatives. The form of any particular partnership will reflect the interests and priorities of partners and may vary, depending on local

conditions. For example, some partnerships may conduct themselves in accordance with the principles of OCAP (First Nations Centre, 2007), while others may wish to satisfy a different set of principles. Partnerships may be embedded in existing consultation structures, or may involve new structures.

While the development of specific partnerships and partnership activities must remain a decentralized process, a pan-Canadian network that includes provincial and territorial ministries, federal departments, national and regional Aboriginal organizations, indigenous scholars, and academic and professional research organizations can mobilize and facilitate partnership development and support the communication and uptake of results. The usefulness of pan-Canadian networks has been amply demonstrated in several areas of social policy; the Metropolis Canada network on immigration provides a good example. Given the complexity of the issues facing Aboriginal students, the diverse organizations and individuals whose decisions affect policy and program development, and the weakness of the evidence base that can build consensus and support decision making, the creation of a pan-Canadian evidence and dissemination network on Aboriginal education is overdue.

A pan-Canadian evidence and dissemination network would supplement the work that is currently being undertaken within a number of organizations in several ways. By providing a focal point, an established network can attract and leverage funds from a wide variety of sources. For example, a network involving academic researchers, stakeholders, and others would qualify for application to the Social Sciences and Humanities Research Council Partnership Grants program, which triples partners' cash and in-kind contributions. A network structure can open new channels for the meaningful engagement of stakeholders in the creation of data and evidence. For example, webinars hosted by the network can facilitate cost-effective, direct communication between disparate groups, allowing policy and stakeholder audiences to interrogate research results and providing researchers with opportunities to learn about the priorities of communities and gain from expert local knowledge of programs, systems, and social context. The network can play a role in disseminating evaluation results and contribute to developing an understanding of their applicability to local contexts.

CMEC can play an important role within a pan-Canadian evidence and dissemination network by identifying shared interests and priorities among jurisdictions and coordinating provincial and territorial efforts to develop partnerships with national Aboriginal organizations, federal departments, and research organizations within the network. At the same time, individual jurisdictions can develop and enhance partnerships with their regional Aboriginal organizations, which can contribute both to developing local evidence and establishing Canadian evidence.

4. CONCLUSION

Developing a body of evidence to inform policy development related to Aboriginal education is a painstaking, incremental task, while improving educational supports for Aboriginal children and youth is an urgent priority. The current lack of formal evidence about the effectiveness of promising initiatives should not be an excuse for inaction. On the contrary, the path to progress will no doubt involve a good deal of trial and error, as governments, educators, and communities innovate and explore new strategies for achieving success. Evidence that documents these efforts can increase transparency, leading to more informed discussions of policy development. Formal evaluation of

both existing programs and promising initiatives can contribute to the process of identifying effective policies and programs by demonstrating their effects on the full range of outcomes of interest, and facilitating their comparison to alternatives.

At the same time, an increased emphasis on formal quantitative evidence to inform policy decision making raises a number of concerns that are particularly important in the context of Aboriginal education. Rigour and objectivity are difficult goals to achieve, particularly when addressing contentious questions, or when those responsible for collecting data and creating and interpreting evidence are unaware of their own biases. Claims of rigour and objectivity can be used to disempower those who are not viewed as qualified to judge rigour. An overly narrow conception of rigour can lead to overemphasis on outcomes that are easily quantified and modeled. Formal research is costly, and money spent on evaluation of services is money not spent on delivery of services. Finally, despite the ideal of evidence-based policy-making, the research literature is not always clear and compelling enough to settle a question when stakeholders have strong and often opposing views on the effectiveness of alternative policies.

In order to yield its potential benefits, a data and evidence strategy must be designed in a way that minimizes implicit bias, avoids disempowering other voices, maintains a broad focus, and focuses on questions on which data and evidence can shed important new light on contentious policy directions or programs that absorb substantial resources. Success, therefore, will require substantial and ongoing communication and collaboration between communities, Aboriginal organizations, educators, administrators, policy-makers, and researchers.

APPENDIX I

KEY INFORMANT INTERVIEW PROCEDURE

Representatives from each of the provincial and territorial departments of education, five NAOs and forty RAOs were invited to participate in the informant interviews. Four NAOs and five RAOs agreed to participate within the timelines of the project; these are listed in Table A1. Nine provincial/territorial governments and two school districts (suggested by provincial informants) agreed to participate; these are listed in Table A2.

Informants were asked to complete a pre-interview questionnaire, and their responses were used to structure the questions asked in the subsequent interview. Interviews were conducted in person where possible and were based on an agenda provided in advance to all participants. Four of the interviews were completed in writing and the remainder were conducted by phone.

Table A1: Informants from Aboriginal organizations

Organization	Informant	Format
Hosted by Assembly of First Nations (AFN)	Tim Thompson, AFN Shannon Payne, AFN Shirley Fontaine, Assembly of Manitoba Chiefs Raymond Sioui, First Nations Education Council Nancy Doddridge, First Nations Education Council Chief Tyrone McNeil, First Nations Education Steering Committee Linda Cree, AFN Jarrett Laughlin, AFN	In person
Congress of Aboriginal Peoples	Alastair MacPhee	Written
Inuit Tapiriit Kanatami	Maria Wilson	In person
Hosted by Métis National Council	David Boisvert, Métis National Council Geordy McCaffrey, Gabriel Dumont Institute Lisa Wilson, Gabriel Dumont Institute Sharon Conway, Louis Riel Institute and Manitoba Métis Nation	In person
Hosted by Mi'kmaq Confederation of Prince Edward Island (MCPEI)	Allan Gillis, MCPEI Angela Baker, MCPEI Neil Forbes, Lennox Island First Nation Sandra Gaudet, MCPEI	Telephone
Ontario Federation of Indian Friendship Centres	Sylvia Maracle	Telephone
Council of Yukon First Nations	Kluane Adamek	Telephone

Hosted by Aboriginal Council of Winnipeg	Marileen Bartlett, Centre for Aboriginal Human Resource Development Kathy Mallett, Community Education Development Association	Telephone
Métis Council of British Columbia	Colleen Hodgson Kim Hodgson	Telephone
Treaty 8 First Nations	Dale Awasis	Telephone

Table A2: Provincial and territorial informants

Province/Territory	Organization	Informant	Format
British Columbia	Ministry of Education	Gerald Morton, Director, Data Mobilization Trish Rosborough, Director, Aboriginal Education	Written
Alberta	Alberta Education	Janusz Ziemiński, Manager, Policy Research Jane Martin, Director, Aboriginal Policy	Telephone
	Northern Lights School Division	Ron Taylor, Associate Superintendent of Human Resources	Telephone
	Holy Spirit School Division	Chris Smeaton, Superintendent MaryAnne Murphy, District Principal	Telephone
Saskatchewan	First Nations, Métis and Community Education Branch	Michael Gatin, Acting Director	Telephone
Manitoba	Manitoba Education	Dr. Gerald Farthing, Deputy Minister of Education Dino Altieri, Acting Director of the Aboriginal Education Directorate	Telephone
Ontario	Ministry of Education	Patricia Smith, Senior Business and Info Analyst Shirley Carder, Team Lead, K–12 Policy	Written

Quebec	Ministère de l'Éducation, du Loisir et du Sport	Christie Brown, Services à la communauté anglophone, aux affaires autochtones et du Plan Nord Suzie O'Bomsawin-Descoteaux, Conseillère aux affaires autochtones et au Plan Nord	Written
Newfoundland and Labrador	Ministry of Education	Craig White, Program Development Specialist, Aboriginal Education	Telephone
Nova Scotia		None	
New Brunswick	Department of Education and Early Childhood Development	Monica LeBlanc, Director, Corporate Data Management and Analysis Branch Katalin Koller, Program Officer, Office of First Nation Perspectives	Telephone
Prince Edward Island	Department of Education and Early Childhood Development	Darrell DesRoches, Aboriginal/Diversity Specialist	Telephone
Nunavut		None	
Northwest Territories		None	
Yukon		None	

APPENDIX II

USING EVIDENCE TO SUPPORT POLICY DEVELOPMENT: SOME EXAMPLES

Four studies are provided here as examples of how the various evidence-based techniques discussed in Part 2 have been used in practice to support policy development. These examples were chosen for their value in demonstrating techniques for the use of data in policy research and evaluation, without judgment of the specific conclusions reached or the relative importance of the individual issues.

Example 1: Informing priority setting: Students with mental health disorders

This example is presented to illustrate the potential use of administrative data to quantify the prevalence of barriers to success among Aboriginal students and to identify and measure some consequences of these barriers to success within the education system and beyond.

Mental health conditions such as attention deficit hyperactivity disorder (ADHD) and conduct disorders no doubt create serious challenges both at school and beyond for children and youth who suffer from them. Concrete evidence about how widespread these disorders are among Aboriginal students, and the consequences for those who suffer from them, can inform decisions about how to prioritize these needs within an overall strategy for improving outcomes for Aboriginal children and youth.

Measuring the prevalence of mental health disorders among Aboriginal students is fairly straightforward in jurisdictions that both collect an Aboriginal indicator in their education records and have the capacity to link these data to individual health records. For example, Currie, Stabile, Manivong, and Roos (2010) calculated the incidence of identified ADHD and conduct disorders among the general population of children and youth in Manitoba and found that over 10 per cent are treated for these conditions by the time they reach the age of 18. With the recent creation and collection of a standardized indicator of Aboriginal identity in Manitoba's education data, a specific investigation of the incidence and consequences of identified conduct disorders among Aboriginal students in that province is now feasible.

British Columbia data provide some insight into the relative prevalence of similar disorders identified among Aboriginal students. Friesen and Krauth (2010) showed that Aboriginal students in British Columbia are more than four times as likely as non-Aboriginal students to be categorized as having

a severe behaviour disorder when in Grade 7, more than three times as likely to be identified as having a moderate behaviour disorder, and almost twice as likely to be identified as having a learning disability (see Table A3 below). If patterns in Manitoba are similar, it is reasonable to speculate that the fraction of Aboriginal students who would be identified as having ADHD/conduct disorders by age 18 is substantially higher than the overall rate of 10 per cent found in the general population. The extent to which these high rates of identified prevalence accurately reflect the true prevalence of these disorders rests on the validity of the assessment tools in the Aboriginal context and requires that their implementation not be racially biased.

Table A3: Characteristics of Grade 7 students in British Columbia, 2002–2004

Variable	Non-Aboriginal	Aboriginal	Both
Number of observations	139,610	14,167	153,777
(Percentage of students)	(90.8)	(9.2)	(100.0)
Per cent disabled			
physical/sensory disability	1.1	2.2	1.2
intellectual disability or autism	1.1	3.3	1.3
severe behavioural disorder	0.8	3.4	1.0
moderate behavioural disorder	1.1	3.4	1.3
learning disability	3.0	5.8	3.3
all disabilities	7.1	18.0	8.1

Excerpted from Friesen and Krauth (2010), Table 7.

Measuring the consequences of mental health disorders is more complex than simply observing that they are associated with poor outcomes. Children and youth who suffer from these disorders are also more likely to experience other disadvantages that affect their well-being and success; for example, the incidence of hyperactivity is three times higher among poor children in Ontario compared to children whose families are not poor (Lipman, Offord, & Boyle, 1994), and lone motherhood is an even more important predictor of hyperactivity symptoms (Dooley, Curtis, Lipman, & Feeny, 1998). Treating children for ADHD or managing their ADHD symptoms at school may mitigate their direct effects on outcomes but will not alter the children’s family circumstances. In order to understand the scope for education policy to support students with mental disorders, the direct effects of children’s mental-health conditions on outcomes must be disentangled from the effects of their surrounding environments.

One promising approach to doing so compares the outcomes of students with identified mental health disorders to the outcomes of their siblings. Since siblings typically experience similar family environments and parental influences, evidence that children who suffer from mental health conditions experience outcomes that are systematically different from those of their mentally healthy siblings can reasonably be attributed to the direct effects of poor mental health. Currie et al. (2010) applied this approach to study how poor health during childhood and adolescence

affects the education and employment outcomes of young adults. Using linked education and health administrative data for young people in Manitoba, Currie et al. found that being treated for ADHD or another conduct disorder reduces the likelihood that a student will enter Grade 12 by age 17, reduces the likelihood that a student will take college-preparatory math courses, lowers literacy test scores, and increases the likelihood of receiving social assistance at age 18. These effects are greater among students who receive treatment for these conditions at a later age. For example, children who are treated when they are between four and eight years old are 10 per cent less likely than their siblings to reach Grade 12 by age 17 and 40 per cent more likely to receive social assistance at age 18; youth who are treated when they are between 14 and 18 years old are almost 20 per cent less likely than their siblings to reach Grade 12 by age 17 and are more than twice as likely to receive social assistance at age 18 (authors' calculations, based on Currie et al., 2010, Table 5).

Once again, Manitoba's new Aboriginal indicator can be used to investigate the consequences of identified mental health disorders specifically among the Aboriginal student population. Similar research can be undertaken in other jurisdictions where suitable linked administrative data are available. In British Columbia, the set of outcome measures can be expanded to include participation and results on standardized tests and provincial exams.

The administrative data from Manitoba and British Columbia demonstrate that a substantial number of students suffer from conduct disorders. These children and youth receive universal access to medical treatment through provincial health-care systems. In addition, Manitoba provides supplementary funding to school districts to support their special educational needs. Despite these interventions, the evidence clearly demonstrates that individuals with conduct disorders face substantial barriers to educational success and to a successful transition into the workforce. The resulting costs are likely high, both to individuals and their families and to provincial and territorial governments. For example, the excessive reliance on social-assistance among 18-year-olds who were previously diagnosed with conduct disorders accounts for about 7 per cent of Manitoba's overall social assistance caseload at this age (authors' calculations based on Currie et al., 2010, Tables 1 and 5). This evidence demonstrates the importance of finding ways to better meet the special educational needs that come with poor mental health.

The evidence also suggests that several specific policy directions deserve further consideration. First, both the Manitoba and British Columbia data show that the identification of conduct disorders is not always persistent, that is, a given student may be identified as having a conduct disorder that warrants treatment or educational supports at certain times but not others. Table A4 below shows, for example, that 45 per cent of children in the moderate behaviour-disorder category in Grade 4 had no special education designation in Grade 7. Of those who had a moderate behaviour disorder in Grade 7, 60 per cent had no special-education designation in Grade 4. Even among those with a serious mental illness, 22 per cent of those designated in Grade 4 had no special-education designation in Grade 7, and 44 per cent of those designated in Grade 7 had no special-education designation in Grade 4. Currie et al. showed a similar pattern of instability in treatment patterns for ADHD and conduct disorders in the Manitoba data (see Currie et al., 2010, Table 3).

Together with the evidence that conduct disorders have more serious consequences for education and employment when children are diagnosed at a later age, these patterns suggest that a greater

emphasis on early detection and prevention may be warranted. The importance of early detection and treatment is further motivated by evidence that the presence of children with undiagnosed ADHD at school reduces their same-grade peers' reading and math test scores substantially (Aizer, 2009). Once ADHD is diagnosed and treated, these children no longer exhibit behaviour that adversely affects other students' academic achievement.

Table A4: Movement of students among disability categories. (Grades 4 and 7 students attending British Columbia public schools between 1999 and 2004)

Category	% of students in category in Grade 4 whose Grade 7 category was:			% of students in category in Grade 7 whose Grade 4 category was:		
	Same	Different	None	Same	Different	None
	Learning disability	70.4	9.6	20.0	41.8	5.1
intense behavioural/ serious mental illness	46.1	32.4	21.6	27.1	28.8	44.1
moderate behavioural/ mild mental illness	29.9	25.2	44.9	28.7	11.6	59.7
autism	92.9	4.4	2.9	70.2	18.8	11.0

Excerpted from Friesen and Krauth (2010), Table 5.

Second, Currie et al. found that conduct disorders have a substantially larger effect on the probability of receiving social assistance at age 18 than they have on entering Grade 12 by age 17. This result suggests that youth face substantial barriers to employment over and above those caused by lower educational attainment. The potential effectiveness of programs and supports aimed at overcoming these barriers, such as career counselling, job-search skills, etc., can be designed specifically for this group of students and delivered through the education system.

Third, other school-based interventions to support students with conduct disorders that have a proven track record of success may warrant increased funding. The research literature indicates that special-education funding in general is effective (Hanushek, Kain, & Rivkin, 2002). However, little is known about the best ways to teach children with symptoms of ADHD or conduct disorders. Fiore, Becker, and Nero (1993) suggest that the use of positive reinforcement, avoidance of long reprimands, and certain ways of presenting information can all be effective when teaching students with ADHD. However, the effectiveness of these and other promising school-based practices for these students warrants further research (Fiore, Becker, & Nero, 1993; Dupaul & Eckert, 1997). Whether increasing supplemental funding for Canadian children and youth with ADHD/conduct disorders would be effective remains an open evaluation question.

Example 2: Evaluating programs: Full-day Kindergarten

This example is presented to illustrate the potential use of administrative data to evaluate the effects of policies and programs.

While some provinces and individual districts have offered full-day Kindergarten (FDK) for special populations, including Aboriginal children, for some time, it is only when jurisdictions offer *universal* FDK that all Aboriginal children have the opportunity to attend. British Columbia, Prince Edward Island, and Ontario have recently joined Quebec, New Brunswick, Yukon, Northwest Territories, and Nova Scotia in implementing universal FDK funding for five-year-olds. However, in Alberta, Saskatchewan, and Manitoba, where approximately half of Canada's Aboriginal children currently reside (based on authors' calculations from 2011 Census), universal FDK for five-year-olds remains a much-discussed policy option. To date, only Ontario has committed to extending FDK to all four-year-olds, although the option of FDK for four-year-olds has been raised in other jurisdictions as well (Early Childhood Learning Agency, 2009).

Despite widespread claims that full-day Kindergarten yields a wide range of benefits (Pascal, 2009; Early Childhood Learning Agency, 2009), the scientific evidence falls far short of having established that this is so. Recent reviews observe that the scientific literature assessing the benefits of FDK is methodologically weak and cannot be used to support strong claims about its effects (Lash, Bae, Barrat, Burr, & Fong, 2008; Cooper, Allen, Patall, & Dent, 2010). The only formal evaluation study that includes specific estimates of the effects of FDK on Aboriginal children is unable to produce sufficiently precise estimates for this group to provide any guidance to policy-makers (Warburton, Anderson, & Hertzman, 2011).

The lack of formal evidence based on rigorous quantitative evaluation of early childhood education programs in Canada is striking, and leaves policy-makers and parents guessing about the value of these programs. Extrapolating from evidence that is based on populations in the United States or other foreign jurisdictions can sometimes provide reasonable estimates of Canadian outcomes. However, differences in institutional environments and in the particular circumstances and needs of specific population groups can result in substantially different results across jurisdictions and communities, even when programs have similar structures. Better evidence about the effectiveness of FDK programs for Aboriginal children can inform policy-makers across Canada about the extent to which the substantial public funds required to fund FDK are wise investments. Evidence about the contributions of FDK to Aboriginal children's learning may also be useful to parents who are choosing from early childhood education options that vary in terms of the length of the program day.

The methodological problem that confronts most studies of FDK arises because researchers are studying its effects in environments in which educators choose where and when to offer full-day and half-day Kindergarten programs. Parents who choose FDK may have different characteristics from parents who choose half-day Kindergarten; for example, families without a stay-at-home parent might be more likely to choose FDK than families with at least one parent is at home, in order to save on child care costs. This difference between the types of families that choose full-day and half-day Kindergarten programs creates an evaluation problem if these two types of families also differ in ways that contribute to children's learning and development. In this case, studies that compare the outcomes of children whose parents self-select FDK or half-day Kindergarten will mistakenly attribute to FDK what are, in fact, the effects of differences in family circumstances. While it is sometimes possible to control for factors like income, many important family characteristics are not measured in the data sets used to evaluate FDK.

The introduction of universal FDK in British Columbia provides an example of how evaluation

opportunities may emerge when new programs are introduced. British Columbia rolled out universal FDK over a two-year period. In the first year, approximately half of the schools switched to FDK, while the others continued to offer half-day programs. As schools switch from half-day to full-day programs, we can compare outcomes of children in adjacent Kindergarten cohorts within the same school. Assuming that the characteristics of families in a given neighbourhood do not change abruptly from one year to the next, differences in outcomes across the two cohorts can be interpreted as the effects of FDK. Comparing this change in outcomes across cohorts in schools that introduced FDK to changes in outcomes across cohorts that did not introduce FDK in the same years ensures that the estimates do not capture unobserved province-wide trends in outcomes. This is an example of a difference-in-differences type of approach, as illustrated in Section 2, Figure 2 of this report.

It is also possible for provincial and territorial governments to work with academic researchers to design the implementation of new programs in ways that facilitate cost-effective and highly credible evaluation studies. For example, a government that phases in FDK over a two-year period can choose to do so by assigning FDK randomly to some schools in the first year, with the remaining schools to follow. Random assignment would ensure that students attending schools that implemented FDK in the first year would, on average, be similar to those attending schools that did so in later years. Differences in outcomes between schools that adopt FDK in the first year and those that do not can then be attributed to the effects of the program.

However, random assignment is not always politically feasible, and is considered by some to be ethically questionable. An alternative mechanism for assigning schools to FDK in each year can also satisfy the requirements of program evaluation. Suppose all schools were ranked on the basis of some *observable* measure (e.g., the percentage of vulnerable children), and schools were assigned to FDK on the basis of this measure, with more vulnerable schools implementing FDK in the first year and the remaining schools doing so in the following year. Students attending schools that are very close to but on opposite sides of the cut-off for first-year FDK funding are likely to be similar, on average. Comparing the difference in outcomes across these two groups of schools, with one group offering FDK and the other not, can provide reliable estimates of the effects of FDK. By assigning FDK to schools on the basis of a clear, observable measure and providing this measure to researchers, governments can create the conditions that would attract academic researchers to undertake evaluation studies at little or no cost to government. This is an example of a “regression discontinuity” or threshold-based approach, as illustrated in Section 2, Figure 1 of this report.

Canada’s long-term interests would be well served if provincial and territorial governments, like many of their US counterparts, started to build evaluation into program implementation. While there are many issues that complicate the process of selecting schools for early versus late implementation of FDK, evaluation strategies can typically work around these as long as they are clearly understood. Several provinces are currently considering whether to go ahead with FDK in the near future. These opportunities to learn about the value of FDK programs for Aboriginal children, if missed, will not soon come again.

Example 3: Evaluating policies: Supplemental funding

This example is presented to illustrate the potential use of administrative data to evaluate the effects of providing supplemental funding to meet students’ special educational needs.

In addition to providing supplemental funding based on some measure of the size of the Aboriginal student population, some jurisdictions provide funding supplements to support Aboriginal students who speak “variations of English that differ significantly from the English used in the broader Canadian society and in school” (Government of British Columbia, 2009). Formal evidence of the effects of these supplementary funding policies on educational outcomes can inform policy discussions about the structure and level of provincial/territorial funding for Aboriginal education.

Battisti, Campbell, Friesen, and Krauth (2011) (BCFK) measured the effects of British Columbia’s English-as-a-second-dialect (ESD) funding supplement on the reading and numeracy skills of Aboriginal students. British Columbia provides school districts with an additional \$1,340 annually for each ESD student for a maximum of five years (Government of British Columbia, 2011). The vast majority of students designated as ESD in British Columbia are Aboriginal. Compared to Aboriginal students who are not in ESD, Aboriginal ESD students in Grade 7 are more likely to speak a language other than English at home, more likely to have a designated disability, and less likely to be designated as gifted (see Table A5). On average, they attend schools where a substantially higher proportion of the school population is Aboriginal. The Aboriginal students who are assigned to ESD are clearly struggling to acquire literacy and numeracy skills; they score lower on standardized numeracy and, especially, reading exams in Grade 7, compared to Aboriginal students who are not in ESD and are more likely to be excused from writing the tests.

Table A5: Characteristics, mean test scores (in standard deviations) and exam participation rates, British Columbia Aboriginal students, Grade 7, 2002–2004

Variable	Not in ESD	In ESD
Number of students	13,414	1,206
% Aboriginal peers	23.9	46.0
% non-English language at home	1.0	5.1
% currently ESL/ESD	9.0	100.0
% disabled	19.0	30.8
% gifted	0.8	0.3
average numeracy score*	-0.6	-1.0
average reading score*	-0.6	-1.3
% taking numeracy exam	77.2	61.6
% taking reading exam	80.4	66.3
% excused from numeracy exam	11.2	21.8
% excused from reading exam	10.4	21.3

*Standardized Foundation Skills Assessment test administered in Grade 7

Source: Battisti et al. (2011) from British Columbia Ministry of Education administrative and test score data.

BCFK take advantage of the expansion of ESD in British Columbia between 1999 and 2004 to design and implement a formal evaluation of this policy. Their method compares the average outcomes of Aboriginal students in a given district after that district expands ESD (the program group) to the average outcomes of students in the same district and grade prior to the expansion of ESD (the comparison group). They do this for all districts, and average across districts. If these two groups are similar in every other way that affects outcomes, their outcomes will differ, on average, only because one group received more ESD funding support than the other. Any difference in their average outcomes can then be attributed to the effects of this additional ESD funding. This is another example of a difference-in-differences type of approach.

The assumption that Aboriginal students in a district were similar, on average, to Aboriginal students in the same district in the years following the district-level expansion of ESD is plausible because the district-level expansion of ESD was sharp and sudden. After remaining largely unchanged for many years, the proportion of Aboriginal students in British Columbia public schools who were designated as ESD tripled between 1999 and 2004 (the years of study), from about 5 per cent to 15 per cent in Grade 4, and from 3 per cent to 11 per cent in Grade 7; the number of districts that identified at least 55 per cent of their Aboriginal students as ESD learners increased from four in 1999 to 16 in 2004. It seems unlikely that this sharp and sudden increase in ESD was driven by a commensurate rise in the number of needy students. Rather, this change in district behaviour provides a “natural experiment” that can be used to learn about the effects of ESD funding on Aboriginal students.

BCFK use this approach to estimate the effects of the district-level expansion of ESD on the reading and numeracy skills development of Aboriginal students between Grades 4 and 7, measured by the change in a student’s Foundation Skills Assessment scores between the two grades. In the average district that took up ESD funding, about 22 per cent of Aboriginal students had an ESD designation during the period of study (1999-2004). BCFK’s results imply that the likely magnitude of the effect of ESD funding in a district that went from assigning no students to ESD to assigning 22 per cent of students to ESD would be large enough to close the reading-score gap between Aboriginal and non-Aboriginal students in Grade 7 by almost one-fifth. This positive effect appears to be strongest among the weakest readers: the improvement among the bottom 25 per cent of Grade 4 exam-writers was almost twice as large as the improvement for the top 25 per cent. No effect on numeracy scores was found.

This evidence can reassure policy-makers that ESD funds are being used effectively and can be used by districts and advocates for ESD to defend their programs against funding cuts. Quantifying the magnitude of the benefit in terms of standardized test scores makes it possible, in principle, to compare the effectiveness of ESD funding to the effectiveness of competing strategies for improving Aboriginal students’ reading skills. Such comparisons can lead to more informed and, presumably, more effective education-policy decision making.

While ESD funding is available only for students who meet the criteria of the policy, these results bode well for the likely effectiveness of supplementary grants for Aboriginal students in general. School districts are permitted to direct ESD funds to providing services that benefit students who are not themselves given the ESD designation. The policy encourages districts to use culturally relevant resources in activities supported by both the Aboriginal and ESD grants, and some of the activities

supported by ESD funds appear similar to those supported by funds from the supplemental Aboriginal grant. For example, some districts use ESD funds to hire specialist teachers who assist classroom teachers and develop program materials, or to acquire reading materials with culturally relevant content. Other services supported by ESD funds are more specialized, e.g., providing support for specific vocabulary-development strategies, offering specialized pull-out oral language instruction, and integrating strategies for oral language development into regular literacy programs.

While this evidence demonstrates that at least some of the programs and services supported by ESD funds in British Columbia are highly effective, BCFK's methodology cannot identify which specific programs or services are responsible for the positive average effect and does not reveal whether some districts are using the funds more successfully than others. A first step toward filling in these important knowledge gaps would involve compiling a list of the specific activities supported by ESD funds in each district, and interviewing key district personnel to learn which activities, in their view, are most effective. However, this approach provides no basis of comparison between activities that are undertaken in different districts, since most district experts' direct experience will be confined to the programs and services provided within that district. This limitation can be overcome only with further evaluation work. Specifically, district activities supported by ESD funding and identified as highly promising by key personnel can be introduced with an evaluation framework as pilot projects that include a variety of outcome measures of interest, including those of a more holistic nature. This strategy, combining the qualities of experiential knowledge, formal quantitative evaluation of existing activities, and pilot evaluation of promising practices using custom data, can provide reliable, relevant, and much-needed guidance to policy-makers and stakeholders across Canada.

Example 4: Using pilot evaluations: Increasing parental engagement

This example is presented to illustrate the potential use of pilot evaluations to identify effective policies and programs.

Given the widespread perception that Aboriginal parents and communities are somewhat disengaged from schools, the demonstrated importance of this engagement to student success, and the shortage of evidence about how best to increase parental and community engagement, evaluations that demonstrate the effectiveness of specific interventions to do so can make a very helpful contribution. Most parental engagement programs have been implemented on a small scale (at the school or sometimes district level). These small programs cannot be evaluated using as-is methodologies, which require large sample sizes. However, well-designed pilot evaluations can produce credible estimates in this context.

As noted in Part 1 of this report, many programs to increase parental engagement have been undertaken in Canada and are thought to be effective, but few if any have been evaluated using rigorous quantitative methodologies (R.A. Malatest & Associates, 2002; McDonald, 2009; Desforges & Abouchaar, 2003, p.5). A recent evaluation in France, although clearly outside the context of Aboriginal education in Canada, provides a useful example of how a local evaluation study could be implemented. Avvisati, Gurgand, Guyon, and Maurin (2012) presented the results of a pilot evaluation of a program aimed at increasing parental engagement with schools in relatively disadvantaged suburbs of Paris. Parents at 200 middle schools were provided with a leaflet at the beginning of the

school year in September to inform them of the program. The program was presented as an outreach effort, distinct from the usual parent-teacher meetings. Parents were told that the school would organize a series of three evening meetings/debates with parents of Grade 6 students to help them understand the role of each member of the educational community and the school's organization, and to help them develop positive attitudes toward being involved in their children's school education.

All parents in 200 Grade 6 classes were invited to volunteer as participants in the program, and about 20 per cent did so. During the enrolment period, schools made it clear to parents that volunteering to participate would not necessarily result in their being offered the program. Out of the original 200 classes, 102 were selected randomly into a program group that was offered the program in November and December, and a comparison group that was not. The three meetings were held at the school at intervals of two weeks and began at 6 p.m. The first two sessions focused on presentations by school staff based on professionally developed materials. The last session, which followed the end-of-term report card, afforded parents an opportunity to seek advice on how to respond to their child's first-term results. Parents were encouraged to ask questions, explain their problems, and share their own experiences in all three sessions.

Random selection of schools ensured that volunteer parents in schools that attended the meetings would not differ from those in schools where the meetings were not held. Comparing average outcomes between these two groups therefore provides a meaningful estimate of the effect of the program. The results demonstrated that, at the end of the school year, parents in the program group were substantially more engaged in school- and home-based activities related to their children's schooling than parents in the comparison group. For example, the proportion of program volunteers who actively participated in the parents' organization at their school was 35 per cent in the program group, compared to 24 per cent in the comparison group. Children of volunteer parents who participated in the program were absent from school less frequently, and demonstrated more positive behaviour and attitudes; the boys especially were less likely to be disciplined. The literacy scores of children whose parents participated increased substantially compared to children whose parents volunteered for the program but attended schools assigned to the comparison group.

In addition to these estimates of the effects of the program on participants and their children, the evaluation design used in this study makes it possible to estimate the effects on children in the program group whose parents did not themselves participate in the program. The program could affect these children's outcome if they were affected by changes in the behaviour of their classmates whose parents did participate. The results demonstrate large positive spillover effects of the program on the behaviour of these children, but no spillover effects on their literacy skills.

These spillover results demonstrate some benefits of universal provision of parenting programs over the alternative of only targeting at-risk families. Providing support to entire communities has the advantage of minimizing the stigma associated with individual targeting. In the context of parenting programs, this does not necessarily come at the cost of smaller benefits for individual pupils, given the large spillovers at play. Moreover, these results indicate that programs of this type can be effective even when the share of parents who choose to participate is small.

Currently, this research is one of the few examples of convincing evidence about the effects of programs designed to increase parental engagement with their children's schools and with their homework. It studies children in Paris, many of them from immigrant communities, many from low-income families. The extent to which these results can be viewed as reliable predictors of the responses and effects on Aboriginal families is debatable. Better evidence about whether a similarly low-cost program can yield substantial benefits in various provincial/territorial settings could potentially galvanize educators to implement them systematically. The results of this study suggest that efforts to establish a local body of evidence on parental engagement programs would be worthwhile.

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Key Policy Issues in Aboriginal Education: An Evidence-Based Approach

In *Learn Canada 2020*, provincial and territorial ministers of education, acting through the Council of Ministers of Education, Canada (CMEC), affirmed their commitment to improving outcomes for Aboriginal students and identified the gaps in academic achievement and graduation rates between Aboriginal and non-Aboriginal students as a key area for attention. One of the strategies articulated in the CMEC Aboriginal Education Action Plan for addressing these gaps in outcomes is “strengthening the capacity for evidence-based decision making.” Toward that goal, CMEC commissioned a report to consider how better data and evidence can be developed to support jurisdictions’ efforts to improve the academic achievement and attainment of Aboriginal students in provincial and territorial elementary and secondary schools.