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A Framework for Statistics on Learning and Education in Canada



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A Framework for Statistics on Learning and Education in Canada

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The Framework at a Glance

Purpose and Scope of the Framework

This Framework is an essential tool in the process of deciding the information priorities of the Canadian Education Statistics Program (CESP). It provides the topography for identifying information needs in the learning and education environment in Canada in a way that identifies the relevance of the information to the system as well as the interrelationships among pieces of information. It profiles the diverse interests of users, while ensuring that gaps are avoided and overlaps are identified. In addition, the Framework covers the needs for reporting to the Organization for Economic Cooperation and Development (OECD) on education and learning.

In developing the plan for implementing the information priorities of the CESP, the Framework can focus decision making around policy issues in a way that provides consistency to data collection activities and subsequent analysis and interpretation. The result will be a more standardized approach to addressing the information needs of the CESP, ensuring that important gaps are addressed and unnecessary overlap and duplication is avoided.

The Framework addresses the scope of Canada Learn 2020, which is based on the vision of quality lifelong learning opportunities for all Canadians. Lifelong learning is articulated in Canada Learn 2020 to encompass four pillars:

- Early Childhood Learning and Development
- Elementary-Secondary Education

- Postsecondary Education (PSE)
- Adult Learning and Skills Development

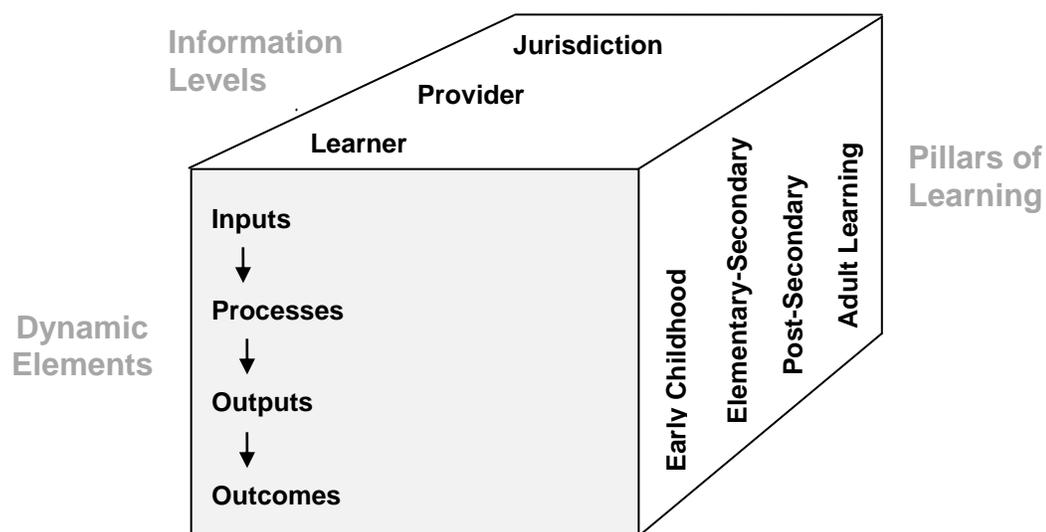
There are many potential users of information on learning and education, including funders, educators, policy makers, researchers, learners and their families, and the general public. Information will be needed to address policy questions, to provide accountability for public funding, to assess the effectiveness and efficiency of learning activities, and to assist individuals in making decisions about their own learning pathways.

The CESP operates within a continually changing context composed of the interests and concerns of governments, institutions, business, individuals and the broader civil society, and its priorities can be expected to evolve over time in tune with changes in this context.

Multi-Dimensional Framework Structure

The Framework provides a multi-dimensional structure for organizing the pan-Canadian information needs on education and learning. Some of the key elements of the structure are depicted graphically in Figure A. The structure of the Framework is intended to facilitate easy identification of the information needed about learning and education in Canada, and the utility of that information. The Framework articulates the policy questions and other uses for the information that can help in establishing priorities for the CESP. The Framework itself does not include data collection options or priorities. Although the Framework will be central to that decision making process, other information, such as resources, feasibility and capacity need to be considered as well.

Figure A: Multi-Dimensional Structure of the Framework



Information Levels

The Framework is presented in series of matrices, one for each of the four pillars of learning. Each matrix is divided into three sections, one for each level of information: learner, provider and jurisdiction.

- Learner:** The learner can be a child, a youth, or an adult. Students are learners, but there are learning contexts in which the learner would not be thought of as a student. The learner's family is also included in this category, as information about the learner's family, such as family income and parental education attainment, provides important contextual information. Information about individual learners can be aggregated and reported by grade or program year, program or credential, by institution type, and by jurisdiction. Student level information can also be broken down and reported on the basis of policy relevant demographic, geographic, or

social characteristics of the student and the student's family.

- Provider:** The provider level is defined broadly to cover the diverse range of learning providers and learning activities that exist across the four pillars. Hence, the information covered at this level includes learning activities, individual providers who do the actual delivery, institutions where these activities occur, and organizations responsible for planning and managing the delivery of the activities.

In the context of formal education, learning activities can be defined by the discipline or credential or even the individual subject, depending on information needs. In addition to the learning activity itself, this level includes information about individual providers, such as teachers and instructors, special education specialists, preschool providers, adult trainers.

Institutions include early childhood centres, preschools, elementary and secondary schools, CEGEPs, colleges, universities, and a diverse range of other types of institutions such as community centres. Some institutions will be stand alone institutes such as small private training organizations, and not-for profit organizations. Other institutions are responsible to an organization that provides overall direction, such as school boards, and provincial/territorial departments/ ministries of education, governing bodies such as First Nation’s bands, Indian and Northern Affairs Canada, professional associations, and apprenticeship training boards. These organizations are also providers and information can be collected about them or aggregated and reported at this level.

- **Jurisdiction:** Much of the information collected at other levels can be aggregated at the jurisdiction level, but some information will be collected directly at the jurisdiction level. This includes funding and contextual information, such as population characteristics. Outcomes at the societal level are also captured at this level. Differences between jurisdictions and the contexts in which the elementary-secondary and postsecondary systems exist are captured at the jurisdictional level as well.

Dynamic Elements

Within each information level the information is organized into dynamic elements to illustrate the flow through the system from

input, through process, to output and outcome.

- **Input:** Inputs include the descriptive and contextual information about the people who experience the learning activities, and those who do not, as well as the resources required to carry out the learning activities.
- **Process:** This includes information about the learning activities themselves, and the processes needed to ensure the learning activities can occur.
- **Output:** Outputs can be thought of as the product of the learning activities. They are often expressed as quantifiable measures of effort. They are the direct result of the learning activities.
- **Outcome:** Outcomes reflect the changes made as a result of the learning activities. They are the impacts that the learning has had on the learner, on the system, and on society as a whole, including social and economic impacts.

Figure B provides examples of these elements for the three levels of information in each of the four pillars of learning. Appendix A provides the four detailed matrices, and includes the specific elements in each category; the source of that information, if it currently exists; and comments about the adequacy of the data source, its strengths or weaknesses, where noteworthy.

Figure B: Examples of Dynamic Elements by Information Level and Learning Pillar

Pillar	Element	Learners	Providers	Jurisdictions
Early Childhood	Inputs	Demographic and socio-economic characteristics of learners	Number and characteristics of providers; sources and amounts of income; facilities; enrolment	Characteristics of preschool population
	Processes	Learning activities engaged in	Learning activities and support services provided; method of delivery; class size; expenditures for staff, facilities, etc.	Relevant legislation about early childhood learning; funding; accountability procedures
	Outputs	School readiness measures; parent satisfaction	Rates of school readiness measures	Rates of school readiness for jurisdiction; participation rates
	Outcomes	Level of success in elementary school	Rates of successful transition to elementary school	Rates of successful transition to elementary school
Elementary-Secondary	Inputs	Demographic and socio-economic characteristics of elementary and secondary students	Number and characteristics of providers; sources and amounts of income; facilities; enrolment	Characteristics of school-age population
	Processes	Learning activities engaged in; attitudes and perceptions about learning activities	Learning activities delivered; method of delivery; technology and support services provided;; class size; expenditures for staff, facilities, etc.	Provincial/territorial school acts; curriculum; funding; accountability procedures
	Outputs	Math and reading assessment; grades, high school graduation; student and parent satisfaction	High school graduation; retention and attrition rates	Assessment levels in population; High school graduation and dropout rates
	Outcomes	Level of success in PSE or labour market	Rate of successful transition to PSE or labour market	Social outcomes (e.g., health status, community involvement, civic engagement, crime); labour force participation, GDP growth

Figure B: Examples of Dynamic Elements by Information Level and Learning Pillar

Pillar	Element	Learners	Providers	Jurisdictions
Postsecondary	<i>Inputs</i>	Demographic and socio-economic characteristics of PSE students; amount and source of financing (financial assistance, family, savings, etc.)	Number and characteristics of providers and researchers, where applicable; sources and amounts of income ; tuition fees; enrolment	Characteristics of postsecondary-age population
	<i>Processes</i>	Learning activities engaged in; attitudes and perceptions about PSE; goals; tuition fees and costs for books and supplies	Programs, technology and support services provided; method of delivery; research activity; wait lists; number of qualified applicants not accepted; expenditure for instruction, support services, infrastructure, research, etc.	Legislation about colleges, universities, apprenticeship training; funding; accountability procedures
	<i>Outputs</i>	Credentials received; credits earned; student satisfaction	Persistence and completion rates; research publications, citations, commercialization, patent earnings	Participation rates; education attainment levels
	<i>Outcomes</i>	Labour markets outcomes: earnings, relation of job to study, satisfaction with job, hours worked	Employment rates by field; employer satisfaction	GDP growth, innovation and productivity, labour force participation, social outcomes (health, civic engagement, crime, community involvement, etc.)
Adult Learning	<i>Inputs</i>	Demographic and socio-economic characteristics of adult learners; prior learning assessment	Number and characteristics of providers; sources and amounts of income	Characteristics of adult population
	<i>Processes</i>	Adult learning activities engaged in; attitudes and perceptions about adult learning activities; goals	Learning activities delivered, method of delivery; prior learning assessment; expenditures for staff, facilities, etc.	Funding; accountability procedures
	<i>Outputs</i>	Literacy and numeracy assessment; skills acquired; learner satisfaction	Completion rates	Participation rates; literacy levels and skill levels in population
	<i>Outcomes</i>	Level of labour market success	Rate of success in the labour market	GDP growth, labour force participation, skilled workforce, social outcomes

I. Introduction

The Ministerial Declaration, “*Learn Canada 2020*,” issued in 2008, put forward a Framework for the enhancement of Canada’s education systems, learning opportunities and overall education outcomes. One of the eight key activity areas identified in the Declaration was the creation of “*comprehensive, long-term strategies to collect, analyze and disseminate nationally and internationally comparable data and research.*”

Strategic Plan for the CESC

The first step toward that end was the development of a strategic plan for the Canadian Education Statistics Council (CESC), for the period 2010-2020, to better position the CESC to overcome limitations of the Canadian Education Statistics Program (CESP) and to be able to more fully address the information needs of the Learn Canada 2020 Declaration and priority areas of the Ministers. That plan set out four strategic goals:

1. **Data Planning:** Determine how the information needs of education and learning in Canada, including the Learn Canada 2020 Declaration and priority areas such as PSE capacity, literacy and Aboriginal education, will be addressed by developing a comprehensive Framework that builds on existing practice, and establishing how it will be implemented.
2. **Data Collection, Analysis, & Dissemination:** Collect data required to address the agreed priorities and provide appropriate dissemination tools to meet the needs of a wide audience of stakeholders, including educators, policy

developers, data providers, researchers, and individuals.

3. **Collaboration:** Collaborate effectively with members of the CESC and external stakeholders in the planning, collection, analysis and dissemination of data for components of the Canadian Education Statistics Program (CESP) to ensure its ongoing relevance and continual improvement.
4. **Governance:** Provide transparent, effective and accountable leadership of the CESC and ensure that all provincial and territorial governments and Statistics Canada share authority and responsibility for the management of the CESP.

This Framework is the first step in addressing Goal 1: Data Planning.

Purpose of the Framework

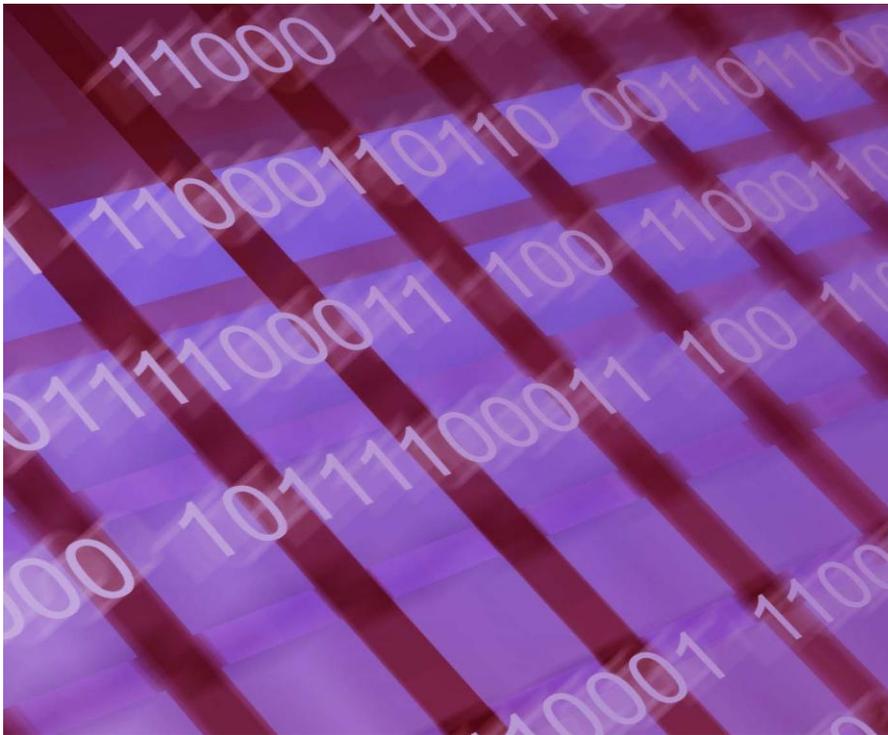
This Framework is an essential tool in the process for deciding the information priorities of the Canadian Education Statistics Program. It provides the topography for identifying information needs in the learning and education environment in Canada in a way that identifies the relevance of the information to the system as well as the interrelationships among pieces of information. It profiles the diverse interests of users, while ensuring that gaps are avoided and overlaps are identified. In addition, the Framework covers the needs for reporting to the Organization for Economic Cooperation and Development (OECD) on education and learning.

The Framework identifies existing sources of information for each information element in the Framework, and it describes any limitations or shortcomings of these sources. It does not, however, specify the technical or

procedural details for collecting or reporting this information, nor does it provide definitions for the data elements. These are all details to be worked out in the plan to implement the Framework.

The Framework can be implemented as a whole, or in parts, as resources and circumstances dictate. The Framework does not specify how it should be implemented but it can be used to set priorities for its

implementation. In developing the implementation plan, the Framework can focus decision making around policy issues in a way that provides consistency to data collection activities and subsequent analysis and interpretation. The result will be a more standardized approach to addressing the information needs of the CESP, ensuring that important gaps are addressed and unnecessary overlap and duplication is avoided.



II. Scope and Coverage

The CESP needs to provide information for a variety of purposes, including:

- to describe and compare educational systems, programs, learners, etc. at a pan-Canadian level and internationally with other OECD countries;
- for policy development;
- for program administration;
- to monitor and evaluate effectiveness and efficiency;
- for research on educational issues;
- to inform learners (and their families) about their learning options; and
- evidence on accountability on the effective use of public funds.

The CESP operates within a continually changing context composed of the interests and concerns of governments, institutions, business, individuals and the broader civil society, and its priorities can be expected to evolve over time in tune with changes in this context.

The Four Pillars of Learning

The Framework addresses the scope of Canada Learn 2020, which is based on the vision of quality lifelong learning opportunities for all Canadians. Lifelong learning is articulated in Canada Learn 2020 to encompass four pillars:

- ***Early Childhood Learning and Development:*** All children should have access to high quality early childhood education that ensures they arrive at school ready to learn.
- ***Elementary to High School Systems:*** All children in our elementary to high school systems deserve teaching and

learning opportunities that are inclusive and that provide them with world-class skills in literacy, numeracy, and science.

- ***Postsecondary Education:*** Canada must increase the number of students pursuing postsecondary education by increasing the quality and accessibility of postsecondary education.
- ***Adult Learning and Skills Development:*** Canada must develop an accessible, diversified, and integrated system of adult learning and skills development that delivers training when Canadians need it.

The Framework can be applied to the diverse range of activities covered in the four pillars of learning. From an information perspective, clear definitions of each pillar are needed. The following are definitions of each pillar, for the purposes of this Framework:

- ***Early Childhood Learning and Development:*** Encompasses a range of school readiness activities for pre-school children up to kindergarten age, such as health and well-being, language and literacy skills, social skills, and creativity. The goal is to ensure that children are better prepared to learn, especially those from more vulnerable populations, when they enter the elementary education system. The responsibility for early childhood learning and development rests with the ministry or department of education in some jurisdictions; in others, it rests with social, family, or community services or other government ministries.

- Elementary to Secondary Education:** Covers formal education from kindergarten to high school graduation. This education is delivered by the elementary-secondary school system, which is the responsibility of the provincial/territorial ministry/department of education. The system can include private and home schooling as well as the system of public schools. In Quebec, vocational training (including trades training) is delivered at vocational schools that belong to school boards, but also serve adults. They offer vocational training diplomas which are Secondary Level diplomas in Quebec.
- Postsecondary Education:** Covers formal education following secondary school, which includes undergraduate and graduate education and, in most provinces, also covers technical, vocational and apprenticeship training. Although the learner is typically a young adult, PSE can occur at any point in an adult's life. The postsecondary education system consists of both public and private colleges, universities, and apprenticeship training providers.
- Adult Learning and Skills Development:** Encompasses a range of learning and skill development activities such as adult basic education, education upgrading, extension and continuing education, workplace training, and employability programs. There is no one system of adult learning. Providers can be school boards, postsecondary institutions, private training institutions, non-profit organizations, employers, government funded

agencies, and government funded programs targeting displaced workers.¹ Informal activities are also an important part of adult learning.

Formal, informal and non-formal learning activities are relevant to the Framework. Informal and non-formal learning activities may be extremely important sources of learning particularly in early childhood and adult learning.²

Learning Pathways and Transitions

The four pillars in some sense represent a continuum of learning activities from early childhood into adulthood. Each pillar represents a different point along the continuum. However, progress along this continuum is not necessarily linear. While preparation for work is not the only objective for learning, entry into the labour market, which can happen directly from secondary schooling, or from postsecondary education, is an important part of the transitions along the continuum. The Framework includes a dimension to capture the possible pathways and transitions that learners will experience. Figure 1 depicts some of the most common

¹ *The Development and State of the Art of Adult Learning and Education (ALE): Report for Canada (2008)* prepared by CMEC in collaboration with the Canadian Commission for UNESCO, defined adult learning and education to include “literacy and adult basic education, upgrading and secondary school equivalency programs, workplace education, English and French second language programs, extension and continuing education, and employability programs.” (page 6).

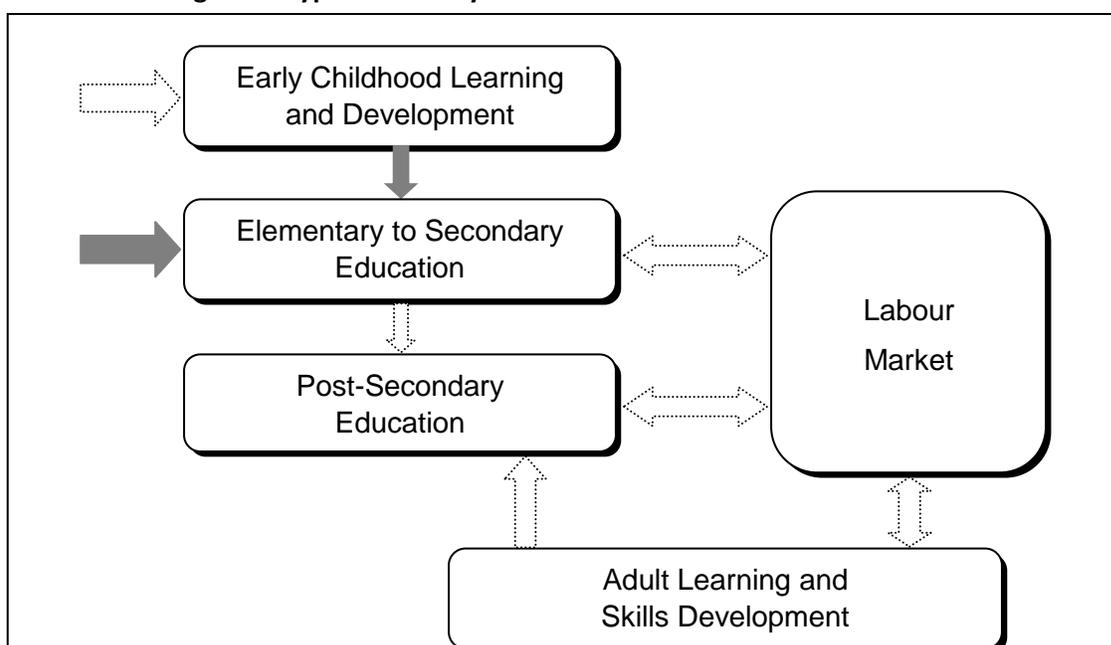
² For definitions of these terms, see Eurostat Task Force on Classifications *Classification for Learning Activities –Manual* (2006 Edition). Luxembourg: European Commission available at: http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-BF-06-002.

pathways showing both compulsory and optional entry and transition points.

Although many learners will follow the continuum in a linear fashion, there are many other pathways that can be followed. Some learners will begin with compulsory schooling, and will not experience any early childhood learning activities. While some will only participate in compulsory education, others will go on to pursue postsecondary education. For some, education will end with the completion of high school, or the completion of postsecondary education, while others will

continue to pursue learning activities throughout their adult life. Some learners will not pursue any formal postsecondary education but will go on to pursue some form of adult learning and skill development. Transition to adult learning will typically be from the labour market, not from another pillar, however there are circumstances such as parents seeking to update skills following an extended period out of employment due to child rearing where the learner is not entering from the labour market.

Figure 1: Typical Pathways and Transitions Across the Four Pillars*



* Note: Solid arrows represent compulsory transitions; open arrows represent options

Transitions can also be thought of as outcomes. Each pillar has a number of possible outcomes, and each outcome represents a transition to another level on the continuum. Table 1 summarizes the most obvious outcomes for each pillar, some of which are transitions to another pillar.

Although the labour market is not a learning pillar, and labour force participation is not the only objective of education, measures of labour market activity are important outcomes of educational activity, and hence the labour market, and transitions to and from the labour market, are captured in the Framework. The nature and type of

employment (full or part-time, relationship to education, salary, job satisfaction, etc.) are important outcomes of educational programs.

Table 1: Illustrations of Transitions as Outcomes for Each Pillar

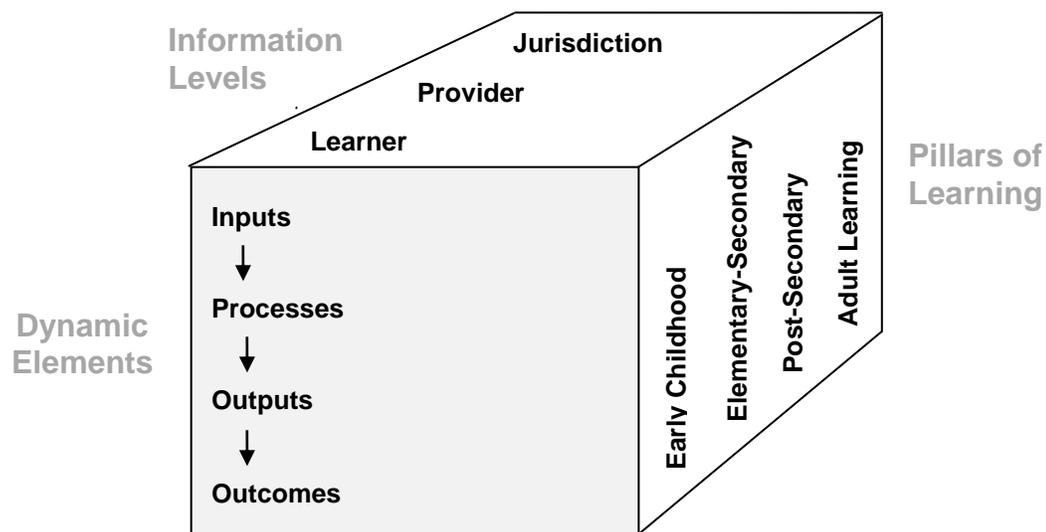
Early childhood:	Readiness for elementary schooling Entry into Kindergarten/Grade 1 Characteristics of performance in early elementary
Elementary-secondary:	Acquisition of knowledge and skills Entry into postsecondary education Characteristics of PSE activity and performance Entry into the labour market Characteristics of labour market activity
Postsecondary:	Acquisition of occupational-specific and general knowledge and skills Entry into the labour market Characteristics of labour market activity
Adult learning:	Up-grading of basic skills Acquisition of occupational-specific and general knowledge and skills Retention of job or advancement Transition to new occupation Characteristics of labour market activity

Framework Structure

The Framework provides a multi-dimensional structure for organizing the pan-Canadian information needs on education and learning. Some of the key elements of the structure are depicted graphically in Figure 2. The structure of the Framework is intended to facilitate easy identification of the information needed about learning and education in Canada, and the utility of that information. There are many potential users of information on learning and education, including funders, educators, policy makers, researchers, learners and their families, and the general public.

Information will be needed to address policy questions, to provide accountability for public funding, to assess the effectiveness and efficiency of learning activities, and to assist individuals in making decisions about their own learning pathways. The Framework articulates the policy questions and other uses for the information that can help in establishing priorities for the CESP. The Framework itself does not include data collection options or priorities. Although Framework will be central to that decision making process, other information, such as resources, feasibility and capacity need to be considered as well.

Figure 2: Multi-Dimensional Structure of the Framework



Information Levels

The four pillars of learning and the transitions between them provide the backbone to the Framework structure. For each pillar, there are three levels at which information will be needed: learners, learning providers, and jurisdictions.

- Learner:** The learner can be a child, a youth, or an adult. Students are learners, but there are learning contexts in which the learner would not be thought of as a student. The learner’s family is also included in this category, as information about the learner’s family, such as family income and parental education attainment, provides important contextual information. For a full understanding of the learner sometimes information about applicable non-learners will also be needed. For instance, to fully understand the population of learners, to understand issues with respect to barriers to access, and to

understand the impacts of the education or learning activities, information about those not participating in the activity will be important. Since elementary-secondary education is compulsory until the age of 16 in most provinces, the concept of a non-completer is more applicable in this context. The primary relevance of a non-learner is to postsecondary education and adult learning and development. It may have some relevance to early childhood learning and development as well, though, since this pillar is also not compulsory. Information about individual learners can be aggregated and reported by grade or program year, program or credential, by institution type, and by jurisdiction. Student level information can also be broken down and reported on the basis of policy relevant demographic, geographic, or social characteristics of the student and the student’s family.

- Provider:** This level is defined broadly to cover the diverse range of learning

providers and learning activities that exist across the four pillars. Hence, the information covered at this level includes learning activities, individual providers who do the actual delivery, institutions where these activities occur, and organizations responsible for planning and managing the delivery of the activities.

In the context of formal education, learning activities can be defined by the discipline or credential, or even by the individual subject, depending on information needs. The information provided about the learning activity will necessarily depend on the nature of the activity, but can include whether formal assessment is included and if so, method of assessment, method of delivery (structured or not, classroom, practicum, correspondence, on-line, etc.), hours of instruction, and type of credential, if applicable.

The individual provider in a formal education context would be a teacher or instructor. Other possible providers include classroom assistants, teaching assistants, special education specialists, preschool providers, postsecondary instructors, trainers and mentors.

Institutions include early childhood centres, preschools, elementary and secondary schools, CEGEPs, colleges, universities, and a diverse range of other types of institutions such as community centres. Institutions may deliver just one type of program, but typically they deliver many types of learning activities. Many institutions also play a role in related activities;

such as the research function of universities and colleges.

Some institutions will be stand-alone organizations responsible for the planning and management as well as delivery. These can include small private training organizations, and not-for profit organizations. Other institutions are responsible to an organization that provides overall direction, such as school boards, and provincial/territorial departments/ministries of education, governing bodies such as First Nation's bands, Indian and Northern Affairs Canada, professional associations, and apprenticeship training boards. These organizations are also providers and information can be collected about them or aggregated and reported at this level.

- **Jurisdiction:** Much of the information collected at other levels can be aggregated at the jurisdiction level, but some information will be collected directly at the jurisdiction level. This includes funding and contextual information, such as population characteristics. Outcomes at the societal level are also captured at this level.

Since education is a provincial/territorial responsibility education systems are jurisdiction specific; there is no national elementary-secondary or postsecondary system, for instance. The composition of the elementary-secondary systems and the postsecondary systems across the country are similar, making it possible to make comparisons across jurisdictions. However, the differences between jurisdictions and

the contexts in which the systems exist need to be captured in the Framework as well. The jurisdictional level is where these organizational and contextual differences are captured.

Geography is another factor to consider at the jurisdictional level. There may be a need to have regional information, either within jurisdictions, or regions across jurisdictions. Rural versus urban is another relevant geographic dimension.

Dynamic Elements

There is a wealth of information on learning and education in Canada that can be covered in the CESP. This section describes the different types of information required for each level of information. The information is organized into dynamic elements to illustrate the flow through the system from input, through process, to output and outcome. The four dynamic elements are described below. Figure 3 provides examples of these elements for the three levels of information in each of the four pillars of learning.

- **Input:** Inputs include the descriptive and contextual information about the people who experience the learning activities, and those who do not, as well as the resources required to carry out the learning activities:
 - About the learner: demographic and socio-economic characteristics, as well as readiness measures;
 - About the provider: finances (sources, amounts), educators (numbers, characteristics, qualifications, salaries), infrastructure, participation rates, contextual information;
- About the jurisdiction: funding (type and amount), participation rates, contextual information such as population size and other characteristics.
- **Process:** This includes information about the learning activities themselves, and the processes needed to ensure the learning activities can occur:
 - About the learner: attitudes towards learning activities, and engagement in learning activities, learning goals and perceptions about learning activities. Hours spent doing school work, working, doing other activities (raising family, etc.). Learning activities engaged in, including field of study, use of computers and internet, etc.;
 - About the provider: method of delivery (on-line, classroom, formal, informal, etc.), hours of instruction, programs offered (by subject, discipline, certification/credential, as applicable). Support services available (library, computer, accommodations for people with disabilities, ESL, tutors, etc.);
 - About the jurisdiction: Processes that provincial/ territorial governments carry out to assist learning such as funding, legislation about delivery, regulation, curriculum.
- **Output:** Outputs can be thought of as the product of the learning activities. They are often expressed as quantifiable measures of effort. They

- are the direct result of the learning activities;
- About the learner: assessment and achievement measures, certification earned, where applicable, skills acquired;
 - About the provider: rates of completion (graduation), retention and attrition, switching programs; research outputs: publications, citations, commercialization, patent earnings;
 - About the jurisdiction: School readiness measures, Educational attainment.
- **Outcome:** Outcomes reflect the changes made as a result of the learning activities. They are the impacts that the learning has had on the learner, on the system, and on society as a whole, including social and economic impacts:
 - About the learner: transitions to other learning pillars or the labour market; success in next transition (e.g. success in school, success in labour market); Labour markets outcomes where applicable: earnings, relation of job to study, satisfaction with job, hours worked, etc.;
 - About the provider: Rate at which graduates/completers make successful transition to next pillar or labour market, as applicable. Labour markets outcomes where applicable: employment rates, employer satisfaction, etc.;
 - About the jurisdiction: Return on investment, innovation and productivity due to research, aggregate labour force participation where applicable, GDP growth, skill shortages, literacy and numeracy levels in the population.



Figure 3: Examples of Dynamic Elements by Information Level and Learning Pillar

Pillar	Element	Learners	Providers	Jurisdictions
Early Childhood	Inputs	Demographic and socio-economic characteristics of learners	Number and characteristics of providers; sources and amounts of income; facilities; enrolment	Characteristics of preschool population
	Processes	Learning activities engaged in	Learning activities and support services provided; method of delivery; class size; expenditures for staff, facilities, etc.	Relevant legislation about early childhood learning; funding; accountability procedures
	Outputs	School readiness measures; parent satisfaction	Rates of school readiness measures	Rates of school readiness for jurisdiction; participation rates
	Outcomes	Level of success in elementary school	Rates of successful transition to elementary school	Rates of successful transition to elementary school
Elementary-Secondary	Inputs	Demographic and socio-economic characteristics of elementary and secondary students	Number and characteristics of providers; sources and amounts of income; facilities; enrolment	Characteristics of school-age population
	Processes	Learning activities engaged in; attitudes and perceptions about learning activities	Learning activities delivered; method of delivery; technology and support services provided;; class size; expenditures for staff, facilities, etc.	Provincial/territorial school acts; curriculum; funding; accountability procedures
	Outputs	Math and reading assessment; grades, high school graduation; student and parent satisfaction	High school graduation; retention and attrition rates	Assessment levels in population; High school graduation and dropout rates
	Outcomes	Level of success in PSE or labour market	Rate of successful transition to PSE or labour market	Social outcomes (e.g., health status, community involvement, civic engagement, crime); labour force participation, GDP growth

Figure 3: Examples of Dynamic Elements by Information Level and Learning Pillar

Pillar	Element	Learners	Providers	Jurisdictions
Postsecondary	Inputs	Demographic and socio-economic characteristics of PSE students; amount and source of financing (financial assistance, family, savings, etc.)	Number and characteristics of providers and researchers, where applicable; sources and amounts of income ; tuition fees; enrolment	Characteristics of postsecondary-age population
	Processes	Learning activities engaged in; attitudes and perceptions about PSE; goals; tuition fees and costs for books and supplies	Programs, technology and support services provided; method of delivery; research activity; wait lists; number of qualified applicants not accepted; expenditure for instruction, support services, infrastructure, research, etc.	Legislation about colleges, universities, apprenticeship training; funding; accountability procedures
	Outputs	Credentials received; credits earned; student satisfaction	Persistence and completion rates; research publications, citations, commercialization, patent earnings	Participation rates; education attainment levels
	Outcomes	Labour markets outcomes: earnings, relation of job to study, satisfaction with job, hours worked	Employment rates by field; employer satisfaction	GDP growth, innovation and productivity, labour force participation, social outcomes (health, civic engagement, crime, community involvement, etc.)
Adult Learning	Inputs	Demographic and socio-economic characteristics of adult learners; prior learning assessment	Number and characteristics of providers; sources and amounts of income	Characteristics of adult population
	Processes	Adult learning activities engaged in; attitudes and perceptions about adult learning activities; goals	Learning activities delivered, method of delivery; prior learning assessment; expenditures for staff, facilities, etc.	Funding; accountability procedures
	Outputs	Literacy and numeracy assessment; skills acquired; learner satisfaction	Completion rates	Participation rates; literacy levels and skill levels in population
	Outcomes	Level of labour market success	Rate of success in the labour market	GDP growth, labour force participation, skilled workforce, social outcomes

III. Information Needs

The information needs of the four pillars have been organized into a series of matrices, one for each pillar, following to the structure described in the previous chapter. Each matrix is divided into three sections, one for each level of information: learner, provider and jurisdiction. Within each section the specific input, process, output and outcome elements are described. The matrices are provided in Appendix A.

For each type of dynamic element, the matrix identifies:

- the specific elements in that category;
- the source of that information, if it currently exists; and
- comments about the adequacy of the data source, its strengths or weaknesses, where noteworthy.

The information in the matrices is not intended to be proscriptive; it reflects the realm of possibility to guide decisions about what information would be desirable, or necessary.

The first column in the matrices lists the information elements. Only general descriptions of the elements are provided. Precise definitions will be needed for those elements that will be implemented. Many of the elements are already collected in one form or another. Decisions about the optimal definition to use will need to be part of the implementation plan.

An information element that is collected at the learner level can be aggregated and reported at the provider and jurisdictional level. We do not specify every possible way of aggregating the data, as the possibilities are almost endless. Learner level information can be aggregated to the program level, the field of study, the credential, the type of

institution, or any combination of these. The information can also be aggregated by characteristics of the student within each of the possible aggregation levels, such as number of Aboriginal and non-Aboriginal students earning each type of credential, or number of students with disabilities by field of study, or number of first generation students by credential.

Not all information that is reported at the jurisdictional level is reported disaggregated at the provider or learner level. For instance, information about the population, even if measured at the individual level, is only needed at the jurisdiction level for the purposes of the Framework. Some outcomes are only relevant at an aggregate level, not at a learner level. For example, social outcomes such as voting behaviour and crime rates, as well as economic impacts, are only relevant at the jurisdictional level.



Appendix A: Matrices of Information Needs for Each Learning Pillar

This appendix contains four matrices, one for each pillar:

- Early Childhood Learning and Development
- Elementary-Secondary Education
- Postsecondary Education
- Adult Learning and Skills Development

Each matrix is divided into three sections, one for each level of information: learner, provider and jurisdiction. Within each section the specific input, process, output and outcome elements are described. A brief definition of each type of element follows:

- **Input:** Include the descriptive and contextual information about the people who experience the learning activities, and those who do not, as well as the resources required to carry out the learning activities.
- **Process:** Includes information about the learning activities themselves, and the processes needed to ensure the learning activities can occur.
- **Output:** Can be thought of as the product of the learning activities. They are often expressed as quantifiable measures of effort. They are the direct result of the learning activities.
- **Outcomes:** Reflect the changes made as a result of the learning activities. They are the impacts that the learning has had on the learner, on the system, and on society as a whole, including social and economic impacts.

For each type of dynamic element, the matrix identifies:

- the specific elements in that category;
- the source of that information, if it currently exists; and
- comments about the adequacy of the data source, its strengths or weaknesses, where noteworthy.

A glossary of the acronyms used for each survey or administrative data source is provided in Appendix B.

Note matrices are colour-coded for ease of identifying the information level. The learner level is in green, the provider level in orange and the jurisdiction level in purple.

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
Learner Level			
Input	Characteristics of individuals in formal learning: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, etc.	Currently, both NLSCY and SAEP (now part of ASETS) cover this group	<i>There will be a new NLSCY fielded in 2010 which will be cross-sectional only and in which provincial estimates will be made available for at least 0 to 5 years old age groups and national estimates will be made available for 6-18 years old groups. The survey will be conducted every 2 or 3 years (not determined yet).</i>
	Characteristics of individuals not in formal learning: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, etc.	Currently, both NLSCY and SAEP (now part of ASETS) cover this group	
	Parental involvement in child's learning	ASETS	
	Learner engagement in learning	ASETS	
Process	Description of type of learning activities in which learner participated and information about participation, such as time spent on each activity	NLSCY (weak subject coverage)	NLSCY is an excellent longitudinal instrument - the weakness of NLSCY is sample size at any given age level which may be too small especially for accurate work at the jurisdictional level.

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
	Description of informal learning activities engaged in the home environment and time spent on each activity	NLSCY (good subject coverage)	
	Description of informal learning activities engaged in the community and time spent on each activity	NLSCY (weak subject coverage)	This could include sports activities (such as gymnastics, T-ball, swimming), creative arts
	Peer interactions	NLSCY (good subject coverage)	
	Parent's views about child's attitudes about learning and engagement in learning activities	NLSCY (good subject coverage)	
	Parent's attitudes toward education and goals for child	NLSCY (good subject coverage)	
	Tuition and other costs as applicable	SHS contains household data on childcare, but for households with more than one child, it is impossible to separate costs	Could be added in future ASETS/NLSCY
Output	Social and physical skills acquired	Social Development and Motor and Sensory Development scales of NLSCY	

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
	Literacy and numeracy skills acquired	Peabody Picture Vocabulary test of NLSCY Math test of NLSCY	
	Parental perception of learning environment and activities	NLSCY	
Outcomes	Performance in early elementary grades	NLSCY Provincial/Territorial admin databases	NLSCY sample size at any given year level somewhat small to construct outcomes measures at a particular age. Performance measures in NLSCY are in any case somewhat weak. A link to provincial databases might solve the latter problem – deliberate oversampling of 6 year-olds in NLSCY might address the former.
Provider Level			
Input	Characteristics of individual teachers or providers in formal settings: age, gender, ethnicity, disability, educational attainment	None currently available	If a national survey of ECE providers were to be undertaken, a sampling of educators could be part of it. The LFS and Census provide aggregate information which is not useful at Provider level

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
	Characteristics of parents: age, gender, ethnicity, disability, educational attainment, parenting styles	NLSCY	
	Characteristics of educators in the community (e.g., music teachers, sports coaches, scouting leaders, etc.): age, gender, ethnicity, disability, educational attainment	None currently available	Very difficult group to cover
	Characteristics of institutions such as preschools: size; age range served; target population, if applicable; type of learning activities delivered; nature of accreditation; public/private; etc.	None currently available	A national survey of ECE providers could be undertaken, perhaps on a decennial basis. Rosters of licensed providers exist at the provincial level and could be used to form a survey universe.
	Amount of income by source	None currently available	Possible National Survey of ECE providers
	Enrollment for each type of learning activity	None	Possible National Survey of ECE providers NLSCY does not provide information that can be used at the provider level
Process	Description of formal learning activities provided, method of delivery, hours of instruction	None currently available	Possible National Survey of ECE providers

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
	Description of informal learning activities provided (e.g., music, sports, scouting, etc.), method of delivery, hours of instruction	None currently available	Possible National Survey of ECE providers
	Description of services provided to support learning including: learning resources such as books and technology; services for learners with learning, cognitive, physical or sensory disabilities; English as a second language instruction; tutors	None currently available	Possible National Survey of ECE providers
	Expenditure by category: staff, facilities, etc	None currently available	Possible National Survey of ECE providers
	Class size	None currently available	Possible National Survey of ECE providers
Output	Social and physical skills acquired broken down by type of student	None currently available	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
	Parental satisfaction with learning environment and activities broken down by type of student	None currently available	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
Outcomes	Performance in early elementary grades by type of student	None currently available	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
Jurisdiction Level			
Input	<i>Characteristics of pre-school age population: distribution of age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings</i>	Census	CESC action required to define age range of relevant population – what is a population input to ECE? 2 year-olds? Newborns? Expectant mothers?
	Characteristics of community/region (e.g., unemployment rates, poverty rates, libraries per capita, etc.	Census, Labour Force Survey	
Process	Legislation and regulations about early childhood learning activities	Not currently collected on pan-Canadian basis	
	Funding provided for early childhood learning activities and support services	Not currently collected on pan-Canadian basis	
	Accountability procedures for public funds spent on early childhood learning activities	Not currently collected on pan-Canadian basis	

Learning Pillar: Early Childhood Learning and Development

Type	Element	Source	Comments
	Accreditation procedures for providers	Not currently collected on pan-Canadian basis	
Output	Rates in population of participation in formal early childhood learning	Possibly derived from NLSCY Possibly provincial/territorial administrative databases	Aggregate of learner level information at jurisdiction level ; sample size may be an issue in some jurisdictions NLSCY collects day care participation, but doesn't indicate whether or not education programming is part of day care
	Social and physical skills acquired broken down by type of student (e.g. Aboriginal, Disabilities, ESL, etc.)	Can be derived from NLSCY	See above
	Parental perception of learning environment and activities broken down by type of student (e.g. Aboriginal, disabilities, ESL, etc.)	Can be derived from NLSCY	See above
Outcomes	Performance in early elementary grades by type of student	NLSCY, provincial/territorial administrative databases	Aggregate of learner level information at jurisdiction level
	Literacy	NLSCY	Aggregate of learner level information at jurisdiction level

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
Learner Level			
Input	Characteristics of public and private elementary and secondary students: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	Currently, both NLSCY and SAEP (now part of ASETS) cover this entire group; at the upper secondary level, coverage is also available through YITS. ESESP and Census also provide some coverage Provincial/Territorial administrative databases provides some coverage	Coverage will be made substantially deeper when CESC creates a pan-Canadian administrative database for K-12 students
	Characteristics of learner readiness	NLSCY and ESESP	
	Parental perceptions about child's attitudes towards and engagement in learning	NLSCY, some coverage in SAEP/ASETS	SAEP/ASETS coverage of this issue could be expanded
	Parental involvement in child's learning	ASETS	
	Learner engagement in learning	ASETS, YITS	
Process	Description of subjects, programs and services in which student participated, time spent on each activity	Some coverage in NLSCY and SAEP/ASETS	SAEP/ASETS coverage of this issue could be expanded

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Description of learning activities provided by parent; time spent on each activity	Some coverage in NLSCY and SAEP/ASETS	SAEP/ASETS coverage of this issue could be expanded
	Description of extra-curricular activities in which student participated; time spent on each activity	Some coverage in NLSCY and SAEP/ASETS	SAEP/ASETS coverage of this issue could be expanded
	Student's attitudes about learning activities and measures of engagement in learning	NLSCY, Parents view of attitudes only for the under-12s and some engagement measures for children SCAL and PISA-YITS for 15 year olds	
	Student's goals regarding education and life/work	NLSCY, YITS for later age groups	
	Parent's attitudes toward education and goals for child	SAEP/ASETS, SCAL	
	Tuition and other costs as applicable	SHS contains household data on education and extra-curricular activity expenditures, but for households with more than one child, it is impossible to separate costs.	
	Labour market experience while a student	YITS	

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
Output	Social and physical skills acquired	NLSCY, to some extent	
	Assessment measures: math, reading, etc.	TIMSS, PIRLS, PISA, Provincial assessment Measures Math measures in NLSCY (used to also include reading)	
	Grades in each subject	Provincial/territorial administrative Database	
	High school graduation	Provincial/territorial administrative database	Provinces and territories only report aggregate data to Statistics Canada, not individual level data.
	Characteristics of graduates: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	YITS Provincial/territorial administrative database	ESESP only has aggregate data so not helpful at this level
	Attitudes of graduates about education and goals	YITS	
	Characteristics of early leavers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	YITS	
	Attitudes of early leavers about education and goals	YITS	

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Student satisfaction with school	Not currently collected	YITS coverage of this issue could be expanded
	Parental satisfaction with school	Not currently collected	SAEP/ASETS coverage of this issue could be expanded
Outcomes	PSE participation and outcomes, if applicable: Characteristics of PSE activity engaged in and performance	YITS	
	Labour market participation and outcomes, if applicable: status, nature of employment (full-time, part-time, permanent, seasonal, skill level), time to find employment, if working: earnings, hours worked, satisfaction with job; relation of job to program of study	YITS In Quebec: Annual "Relance" Survey for vocational training	
Provider Level			
Input	Characteristics of individual teachers: age, gender, ethnicity, disability, educational attainment	Not currently collected; some data may be available through provincial sources	

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Characteristics of parents: age, gender, ethnicity, disability, educational attainment, parenting styles	NLSCY or SAEP/ASETS	
	Characteristics of educators in the community (music teachers, sports coaches): age, gender, ethnicity, disability, educational attainment	Possibly some data is extractable from the Survey of Giving, Volunteering and Participating, but it would be weak.	Very difficult group to cover
	Characteristics of public and private schools: size, age range served, type of learning activities delivered; nature of accreditation	Provincial/territorial administrative databases	
	Characteristics of school boards and organization responsible for schools: public, not for profit, for profit	Provincial/territorial administrative databases	
	Amount of income by source	Survey of Uniform Financial System – School Boards; Survey of Financial Statistics of Private Elementary and Secondary Schools	Coverage of private schools may be incomplete
	Enrollment by grade, special programs	Provincial/territorial administrative databases	ESESP does not provide sufficiently detailed information to be useful at this level. Coverage will be made substantially deeper when CESC creates a pan-Canadian administrative database for K-12 students

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
Process	Description of learning activities provided (formal, non-formal or informal), subjects, programs, description of method of delivery, hours of instruction, expected learning outcomes	None currently available.	
	Description of services provided to support learning including: learning resources such as books and technology; services for learners with learning, cognitive, physical or sensory disabilities; English as a second language instruction; tutors	None currently available.	
	Expenditure by category: staff, facilities, etc	Survey of Uniform Financial System – School Boards, Survey of Financial Statistics of Private Elementary and Secondary Schools	
	Class size	Provincial/territorial administrative databases	
Output	Assessment of social and physical skills	NLSCY	Aggregate of learner level information at provider/ program/ organization level as desired
	Assessment measures: math, reading, etc., broken down by type of student/program	TIMSS, PIRLS, PISA, Provincial Assessment Measures	Aggregate of learner level information from Provincial Assessment Measures at provider/ program/ organization level as desired

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Grades in each subject broken down by type of student	Provincial/territorial administrative database	Aggregate of learner level information from Provincial Assessment Measures at provider/ program/ organization level as desired
	High school graduation broken down by type of student	Provincial/territorial administrative database	Aggregate of learner level information at provider/ program/ organization level as desired As part of ESESP, provinces only report aggregate data to Statistics Canada, not individual level data, so not applicable for provider level
	Characteristics of graduates: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	YITS Some coverage in Provincial/Territorial administrative databases	Aggregate of learner level information at this level would require additional microdata collection at the provincial level YITS does not provide information about recent cohorts
	Attitudes of graduates about education and goals broken down by type of student	YITS	Aggregate of learner level information at this level would require additional microdata collection at the provincial level
	Characteristics of early leavers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	YITS Some coverage in provincial/territorial administrative databases	Aggregate of learner level information at this level would require additional microdata collection at the provincial level

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Attitudes of early leavers about education and goals broken down by type of student	YITS	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
	Student satisfaction with school broken down by type of student	Not currently collected	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
	Parental satisfaction with school broken down by type of student	Not currently collected	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
Outcomes	PSE outcomes, if applicable: characteristics of PSE activity engaged in and performance, broken down by type of student	YITS, provincial/territorial administrative databases and HS follow-up surveys'	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level
	Labour market outcomes, if applicable: status, nature of employment (full-time, part-time, permanent, seasonal, skill level), time to find employment, if working: earnings, hours worked, satisfaction with job; relation of job to program of study, broken down by type of student	YITS, and provincial/territorial HS follow-up surveys. In Quebec: Annual "Relance" Survey for vocational training	Aggregate of learner level information at this level would require additional microdata collection at the provincial/territorial level

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
Jurisdiction Level			
Input	Characteristics of school age population: distribution of age, gender, ethnicity, foreign-born, native language, disabilities, parental education and income, number of siblings, status of foreign students	Census and ESESP	ESESP provides only limited information, such as age and gender Aggregate of individual learner level data
	Characteristics of community/region (e.g., unemployment rates, poverty rates, libraries per capita, etc.)	Census and Labour Force Survey provides some of this information	
Process	Legislation and regulations about elementary-secondary education	Not currently collected on pan-Canadian basis	
	Funding provided for elementary-secondary education and support services	ESESP and Elementary-secondary Finance statistics program, PROVEX	
	Incentives for other learning activities (e.g. sports and culture)	Not currently collected on pan-Canadian basis	
	Accountability procedures for public funds spent on elementary-secondary education	Not currently collected on pan-Canadian basis	
	Accreditation procedures for schools	Not currently collected on pan-Canadian basis	

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Linkages with community programs (e.g. health, business, PSE institutions)	Not currently collected on pan-Canadian basis	
Output	Assessment of social and physical skills	NLSCY	Aggregate of learner level information at the jurisdictional level
	Assessment levels in population by type of student: reading, math, etc.	TIMSS, PIRLS, PISA, Provincial Assessment Measures	Aggregate of learner level information at the jurisdictional level
	Subject and average grades by type of student	Provincial/territorial administrative database	Aggregate of learner level information at the jurisdictional level
	Characteristics of graduates: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	YITS	Aggregate of learner level information at the jurisdictional level
	Attitudes of graduates about education and goals by type of student	YITS	Aggregate of learner level information at the jurisdictional level
	Characteristics of early leavers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	YITS	Aggregate of learner level information at the jurisdictional level
	Attitudes of early leavers about education and goals	YITS	Aggregate of learner level information at the jurisdictional level

Learning Pillar: Elementary-Secondary Education

Type	Element	Source	Comments
	Student satisfaction with school	Not currently collected on pan-Canadian basis	Aggregate of learner level information at the jurisdictional level
	Parental satisfaction with school	Not currently collected on pan-Canadian basis	Aggregate of learner level information at the jurisdictional level
Outcomes	Literacy and numeracy levels in population	IALS or equivalent (IALSS 2003 & and upcoming PIACC 2011)	Literacy and numeracy levels in the adult population can be considered an outcome of childhood education
	Social outcomes: health status, community involvement, civic engagement, crime rates	Various social surveys such as CCHS, GSS, NPHS	
	Economic outcomes: GDP growth; unemployment rates	Canadian System of National Accounts, LFS	
	Labour market participation rates	LFS	Could be modified to improve education variables
	PSE participation rates	YITS, PSIS	

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
Learner Level			
Input	Characteristics of postsecondary students: age, gender, ethnicity, native language, disabilities; parental education and income, number of siblings, prior postsecondary experience (initially rejected, previous credentials, etc.), employment status, status of foreign students	YITS, PSIS, PEPS/ASETS	YITS has excellent coverage of this issue, but because of its longitudinal nature, cannot capture statistics aggregating PSE as a whole. PEPS originally had a limited age range (thus limiting its usefulness for aggregation) – the new ASETS has no age range limitation
	Characteristics of non-pursuers of PSE: age, gender, ethnicity, native language, disabilities, parental education and income, number of sibling, employment status	YITS, Census to some extent	
	Amount and source of financing (government financial assistance, family, savings, private loan, scholarships, etc.)	YITS, PEPS/ASETS Student financial Aid databases	YITS financial module needs improvement Consolidation of provincial student aid administrative databases, plus link to PSIS, and/or LAD would increase our knowledge of financial aid and outcomes enormously.
Process	Description of disciplines, programs and services in which student participated, total time spent on each activity	YITS	Description of educational processes could be improved and made more NSSE-like

Learning Pillar: Postsecondary Education			
Type	Element	Source	Comments
	Description of extra-curricular activities in which student participated, total time spent on each activity	YITS (partial) and NLSCY for older age group	Currently, only quantitative data on time use is collected
	Attitudes about PSE and measures of engagement in learning	YITS (partial), institutional surveys (NSSE)	Engagement questions could be improved on YITS
	Student's goals regarding education and life/work	YITS	
	Tuition and costs for books and supplies	YITS, PEPS/ASETS	Financial information questions could be improved on YITS
	Labour market experience while in PSE	YITS, ASETS	
Output	Skills and knowledge acquired	IALS	Very little is available in this respect. Development of AHELO at OECD may improve matters, as may wider adoption of Classification of Learning Activities (CLA)-like measures; however Canada is not a participant of AHELO
	Credits earned	PSIS	More work needed to implement PSIS at this level
	Credential awarded by field of study	PSIS	

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
	Student satisfaction with PSE	YIITS, PEPS/AETS, NGS Provincial/territorial graduate follow-up surveys	
	Characteristics of graduates: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	NGS Provincial/territorial graduate follow-up surveys	
	Attitudes of graduates about education and goals	NGS Provincial/territorial graduate follow-up surveys	Some improvement around career goals possible
	Characteristics of early leavers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	YITS, NAS Provincial/territorial graduate follow-up surveys may have coverage	
	Attitudes of early leavers about education and goals	YITS, NAS Provincial/territorial graduate follow-up surveys may have coverage	Some improvement around career goals possible

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
Outcomes	Labour market outcomes: status, nature of employment (full-time, part-time, permanent, seasonal, skill level); time to find employment; if working: earnings, hours worked, satisfaction with job; relation of job to program of study	NGS and FOG for graduates, unclear for early leavers.	If PSIS and LAD could be connected, labour market outcomes could be matched indefinitely (not just 2-5 years) in great detail to very detailed academic profiles. The need for NGS and FOG for looking at labour market issues would be nearly entirely obviated.
	PSE outcomes if additional PSE pursued	FOG	
Provider Level			
Input	Characteristics of instructors: age, gender, ethnicity, disability, educational attainment, mobility	UCASS has some coverage	Could use improvement data around ethnicity; UCASS does not cover part-time instructors or college instructors
	Characteristics of researchers: age, gender, ethnicity, disability, educational attainment, mobility	UCASS(weak coverage)	A more detailed UCASS that provided some detail around individual faculty members' activities could provide this data
	Characteristics of institutions: size, type of programs delivered; nature of accreditation, number of qualified applicants accepted by program and field, enrollment by program and field	PSIS (partial coverage)	Agreement on institutional descriptors lacking within sector

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
	Characteristics of organization responsible for institution: public, not for profit, for profit; management structure	Not currently collected on pan-Canadian basis	
	Amount of income by source, including tuition fees	FIUC/FINCOL; CAUBO, TLAC	
Process	Description of types of courses and programs offered and credentials awarded, method of delivery, hours of instruction, expected learning outcomes	Not currently collected	PSIS has some fields related to these elements, but they are not systematically reported by providers and there are not disseminated No coverage of private trainers
	Description of services provided to support learning including: learning resources such as books and technology; services for learners with learning, cognitive, physical or sensory disabilities; remediation courses	Not currently collected	
	Description of research activities engaged in	Not currently collected	Granting Councils (NSERC, SSHRC, CIHR, CFI) would have some information on what they fund
	Expenditure by category: instruction, support services, infrastructure, research, etc.	FIUC (CAUBO), FINCOL	Data not collected at an especially fine level – difficult to work with, difficult to link to educational processes

Learning Pillar: Postsecondary Education			
Type	Element	Source	Comments
	Wait lists; number of qualified applicants not accepted	Not currently collected	
Output	Retention and attrition rates by type of student	YITS, PSIS if provider reporting of demographic data can be improved	Aggregate of learner level information at field/program level as desired from PSIS; more data collection efforts by provinces/territories required otherwise
	Skills and knowledge acquired by type of student	IALS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Credits earned by type of student	PSIS	More work required to improve PSIS to capture this level of data, but aggregate of learner level information at field/program level as desired once complete
	Credential awarded by type of student	PSIS	Aggregate of learner level information at field/program level as desired
	Student satisfaction with PSE by type of student	YITS, NGS	YITS engagement measures are related to satisfaction Aggregate of learner level information not available below jurisdictional level without further data collection efforts

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
	Characteristics of graduates: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	NGS, YITS Provincial/territorial follow-up surveys	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Attitudes of graduates about education and goals, by type of student/graduate	NGS, YITS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Characteristics of early leavers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings, status of foreign students	YITS Provincial/territorial follow-up surveys	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Attitudes of early leavers about education and goals by type of student	YITS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Research: research publications, citations, commercialization, patent earning	SIPC contains data on commercialization; otherwise, not collected on a consistent pan-Canadian basis	HERD collects some data relevant to this but does not report at the institutional level. FIUC collects some data on earnings from commercialization. Data is available from international sources (e.g. Thompson ISI) on publications and citations, but is not widely available on a comparative institutional basis.

Learning Pillar: Postsecondary Education			
Type	Element	Source	Comments
Outcomes	Employment rates and other labour market outcomes by type of student	LFS, LAD, NGS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts. Alternatively, a PSIS-LAD link would provide extraordinary detail on this subject.
	Employer satisfaction with graduates hired	Not currently collected on a pan-Canadian basis	
	Rates of pursuing further study by type of student	NGS, LAD	Aggregate of learner level information at field/program level as desired
Jurisdiction Level			
Input	Characteristics of PSE age population: distribution of age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	Census	
	Characteristics of community/region (e.g., unemployment rates, poverty rates, libraries per capita, etc.)	Census, General Social Survey, Statistics Canada Community Profiles	
Process	Legislation and regulations about postsecondary education and apprenticeship training	Not currently collected on pan-Canadian basis	

Learning Pillar: Postsecondary Education

Type	Element	Source	Comments
	Funding provided for PSE and support services	FEDEX, Consolidated Government Revenue and Expenditures	
	Funding provided for research	GERD, HERD	
	Accountability procedures for public funds spent on PSE	Not currently collected on pan-Canadian basis	
	Accreditation procedures for institutions	Not currently collected on pan-Canadian basis	
Output	PSE participation rates in population	PSIS	
	Education attainment in population	Census, LFS	LFS question on education could be improved
	Early leaver rates in population	Census	With changes in the instrument, LFS could provide this information as well
	Research: research publications, citations, commercialization, patent earning	Observatoire des Sciences et des Technologies (OST)	CIRST collects information at a very aggregate level (jurisdictional) on bibliometric output by different discipline.
Outcomes	Literacy and numeracy levels in population	IALS, IALSS, PIAAC	Aggregate of learner level information

Learning Pillar: Postsecondary Education

<i>Type</i>	<i>Element</i>	<i>Source</i>	<i>Comments</i>
	Skilled workforce	IALS has some information	Aggregate of learner level information
	Labour market participation rates	LFS	
	Economic outcomes: GDP growth; unemployment rates, innovation and productivity	Canadian System of National Accounts, LFS	
	Social outcomes: health status, community involvement, civic engagement, crime rates	Various social surveys such as CCHS, GSS, NPHS	

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
Learner Level			
Input	Characteristics of adult learners: age, gender, ethnicity, native language, disabilities, marital status, number of dependents, labour market experience	AETS-PEPS/ASETS, IALSS, PIACC	CESC decision required on definition of “adult learning” and boundary with “postsecondary”
	Characteristics of employed individuals who participated in employer-sponsored training	AETS-PEPS	
	Amount and source of financing (employer, government financial assistance, family, savings, private loan, scholarships, etc.)	AETS-PEPS/ASETS, IALSS	
	Characteristics of prior learning experience (formal and non-formal)	AETS-PEPS/ASETS	
	Characteristics of prior labour market experience	AETS-PEPS/ASETS	
Process	Description of formal learning activities and support services in which learner participated, total time spent on each activity	AETS-PEPS/ASETS, IALSS	
	Description of non-formal learning activities in which learner participated, total time spent on each activity	Not currently collected	

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Attitudes about adult learning	AETS-PEPS/ASETS	
	Goals regarding education and life/work	AETS-PEPS/ASETS	
	Tuition and costs for books and supplies	AETS-PEPS/ASETS	
Output	Skills and knowledge acquired	IALS, PIACC	
	Credential awarded, if applicable	AETS-PEPS/ASETS	
	Learner satisfaction	AETS-PEPS/ASETS	Questions could be expanded/improved (currently asks about “meeting expectations”)
	Characteristics of completers of formal education: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	AETS-PEPS/ASETS	
	Attitudes of completers about education and goals	AETS-PEPS/ASETS	Area could be strengthened
	Characteristics of non-completers of formal education: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	AETS-PEPS/ASETS	

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Attitudes of non-completers about education and goals	AETS-PEPS/ASETS	Area could be strengthened
Outcomes	Labour market outcomes: change in employment status such as increased hours worked, job advancement, skill level, increased earnings; job retention; if working: earnings, hours worked, satisfaction with job; relation of job to program of study	Not currently collected	AETS time-frame is 12 months – no time possible for longer-terms outcomes
	Further learning outcomes: participation in additional formal and informal learning and results	AETS	
Provider Level			
Input	Characteristics of instructors: age, gender, ethnicity, disability, educational attainment	Not currently collected	Would require a new Survey of Adult Education Providers
	Characteristics of institutions: size, type of programs delivered; nature of accreditation	Not currently collected	Would require a new Survey of Adult Education Providers

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Characteristics of organization responsible for institution: public, not for profit, for profit; management structure	Not currently collected	Would require a new Survey of Adult Education Providers.
	Characteristics of employers (size, industry, etc.) who provided training to employees	Not currently collected	Formerly available from WES
	Amount of income by source, including tuition fees	Not currently collected	Would require a new Survey of Adult Education Providers.
	Enrollment by program and field	Not currently collected	Would require a new Survey of Adult Education Providers.
Process	Description of types of learning activities offered; method of delivery (in house, private training, institution, etc.); hours of instruction; expected learning outcomes	Not currently collected, except where institution is a university or college.	Would require a new Survey of Adult Education Providers.
	Prior learning assessment procedures	Not currently collected	Would require a new Survey of Adult Education Providers.
	Description of services provided to support learning including: learning resources such as books and technology; services for learners with learning, cognitive, physical or sensory disabilities; remediation courses	Not currently collected	Would require a new Survey of Adult Education Providers.

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Expenditure by category: instruction, support services, infrastructure, share of payroll spent on employee training, amount of spending on training per employee, etc.	Not currently collected, except where institution is a university or college.	Would require a new Survey of Adult Education Providers.
Output	Retention and attrition rates by type of student	AETS-PEPS/ASETS – weak coverage – (concept not quite the same in short-course programs)	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Skills and knowledge acquired by type of student	IALS, self-assessment in AETS/ASETS (weak coverage)	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Credential awarded, if applicable, by type of student	Not currently collected, except where institution is a university or college.	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Learner satisfaction by type of student	AETS/ASETS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Characteristics of completers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	AETS-PEPS/ASETS – weak coverage – (concept not quite the same in short-course programs)	Aggregate of learner level information not available below jurisdictional level without further data collection efforts

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Attitudes of completers about education and goals by type of student	AETS-PEPS/ASETS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Characteristics of non-completers: age, gender, ethnicity, native language, disabilities, parental education and income, number of siblings	AETS-PEPS/ASETS – weak coverage – (concept not quite the same in short-course programs)	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Attitudes of non-completers about education and goals by type of student	AETS-PEPS/ASETS	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
Outcomes	Labour market outcomes by type of student	LFS, LAD	Aggregate of learner level information not available below jurisdictional level without further data collection efforts
	Employer satisfaction with learners hired by provider/program	Not currently collected on a pan-Canadian basis	

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
Jurisdiction Level			
Input	Characteristics of adult age population: distribution of age, gender, ethnicity, native language, disabilities, marital status, number of dependents, labour market experience	Census	CESC decision needed on definition of “Adult Education” and in particular action needed on how to allocate funds for this purpose
Process	Legislation and regulations about adult learning activities where applicable	Not currently collected on a pan-Canadian basis	
	Funding provided for adult learning and support services	In theory available through Consolidated Accounts, but not easily extractable because of differing ways of allocating funding	
	Accountability procedures for public funds spent on adult learning	Not currently collected on a pan-Canadian basis	
	Accreditation procedures for institutions	Not currently collected on a pan-Canadian basis	
Output	Participation rates in population in various adult learning activities	AETS/ASETS, IALSS, PIACC	

Learning Pillar: Adult Learning and Skills Development

Type	Dynamic Element	Data Source	Comments
	Literacy levels in population	IALS or similar	
	Skill levels in population	IALS has some information	Aggregate of learner level information
Outcomes	Skilled workforce	IALS has some information	Aggregate of learner level information
	Social outcomes: health status, community involvement, civic engagement, crime rates	Various social surveys such as CCHS, GSS, NPHS	
	Economic outcomes: GDP growth; unemployment rates, innovation and productivity	Canadian System of National Accounts, LFS	
	Labour market participation rates	LFS	

Appendix B: Glossary of Data Sources

Acronym	Description	Lead organisation	Periodicity	Type	Universe
AHELO	Assessment of Higher Learning Outcomes	OECD			Not implemented in Canada at this time
ASETS	Access and Support to Education and Training Survey	STC (CES)	Every 5 years	Sample	0-65 years
CCHS	Canadian Community Health Survey	STC (Health Division)	Every year	Sample	Regions
ESESP	Elementary-Secondary Education Statistics Program	STC (CES)	Every year	All jurisdictions	K-12
FEDEX	Federal Expenditure Survey	STC (CES)	Every year	All departments	federal departments
FINCOL	Financial College Survey	STC (CES)	Every year	All institutions	Colleges
FIUC	Financial University Survey	CAUBO/STC (CES)	Every year	All institutions	Universities
FSS	Finance School board Surveys	STC (CES)	Every year	All institutions	School boards
GERD	Gross Domestic Expenditures on Research and Development	STC (Science, Innovation and Electronic Information Division)		Statistical Series	See HERD below
GSS	General Social Survey	STC (Social and Aboriginal Statistics Division)		Sample	15 and up

Acronym	Description	Lead organisation	Periodicity	Type	Universe
HERD	Higher Education Research and Development	STC (Science, Innovation and Electronic Information Division)	Annual	Census (Various sources including CAUBO and STC data)	All research associated with postsecondary institutions
IALS	International Adult Literacy Survey (1994-95)	STC (CES)	Approx every 8-9 years	Sample	16-65 years of age
IALSS (ALL)	International Adult Literacy and Skills Survey (2003)	OECD/STC (CES)	Approx every 8-9 years	Sample	16 years and over
LAD	Longitudinal Administrative Database (Tax files) - 20% of Canadians	STC (Small Area and Administrative Data Division)	Updated every year	Administrative file	20% of all Canadians filling a tax return
LFS	Labour Force Survey	STC (Labour Statistics Division)	Monthly	Sample	15- and up
NAS	National Apprenticeship Survey	STC (CES)	Every 5 years	Sample	enrolees in apprenticeship program
NGS/FOG	National Graduate Survey/Follow up of Graduates Survey	STC (CES)	Every 5 years with 2 and 3 year follow ups	Sample	University and college graduates
NLSCY	National Longitudinal Survey of Children and Youth	STC (Special Surveys Division)	Longitudinal and cross sectional every 2 years	Sample	0-11 cohorts
NPHS	National Population Health Survey	STC (Health Division)	Every 2 years	Sample	All Adults

Acronym	Description	Lead organisation	Periodicity	Type	Universe
NSSE	Natural Survey of Student Engagement	USA			US survey of college and university students
OST	L'Observatoire des sciences et des technologies	Centre interuniversitaire de recherche sur la science et la technologie (CIRST)	Continuous	Researchers affiliated with Canadian institutions published in peer reviewed journals	1000s of peer reviewed journals
PEPS	Postsecondary Education Participation Survey	HRSDC (CSLP)	Discontinued as of 2008		Data are now collected by the ASETS
PIAAC	Programme for International Assessment of Adult Competencies (2011)	OECD/STC (CES)	Approx every 8-9 years	Sample	16-65 years of age
PIRLS	Progress in International Reading and Literacy Study	IEA	Every 5 years	Sample	Grade 4
PISA	Programme for International Student Achievement	OECD/ STC (CES)	Every 3 years	Sample	15 years of age
PROVEX	Provincial Expenditure Survey	STC (CES)	Every year	All departments	Provincial administrations
PSIS	Postsecondary Student Information System	STC (CES)	Every year	All institutions	University and college students
PSIS-LAD	PSIS linkage to LAD	STC (CES)	Occasional	I&A	20% of university and colleges student (cohort)

Acronym	Description	Lead organisation	Periodicity	Type	Universe
PSIS-YITS	PSIS linkage to YITS	STC (CES)	Occasional	I&A	
SAEP	Survey of Approaches to Education and Planning				Now part of ASETS
SCAL	Survey of Canadian Attitudes toward Learning	Canadian Council on Learning	Annual	Sample	18 to 74 who had previously participated in LFS
SFA MODULE OF YITS	Student Financial Aid module of YITS	STC (CES)	Last 2 cohorts is 2000	Sample	Cohort 15 and 18-20
SHS	Survey of Household Spending	STC (Income Statistics Division)	Every year	Sample	Canadian households
TIMSS	Trends in Mathematical and Sciences Study	IEA	Every 4 years	Sample	Grade 4 and 8
TLAC	Tuition and Living Accommodation Survey	STC (CES)	Every year	All institutions	Universities and colleges
WES	Workplace Employee Survey	STC	Annual, longitudinal	Sample from STC's Business Register	Employer and Employee components
YITS	Youth in Transition Survey	STC (CES)	Last 2 cohorts is 2000	Sample	Cohort 15 and 18-20

A Framework for Statistics on Learning and Education in Canada

This Framework is an essential tool in the process of deciding the information priorities of the Canadian Education Statistics Program (CESP). It provides the topography for identifying information needs in the learning and education environment in Canada in a way that identifies the relevance of the information to the system as well as the interrelationships among pieces of information. It profiles the diverse interests of users, while ensuring that gaps are avoided and overlaps are identified. In addition, the Framework covers the needs for reporting to the Organization for Economic Cooperation and Development (OECD) on education and learning.

Also available in French under the title

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