



What matters and what should count:  
A conceptual framework for informing  
public investments in adult learning

*Adult Learning and Returns to Training Project*

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# Introduction

## Report purpose

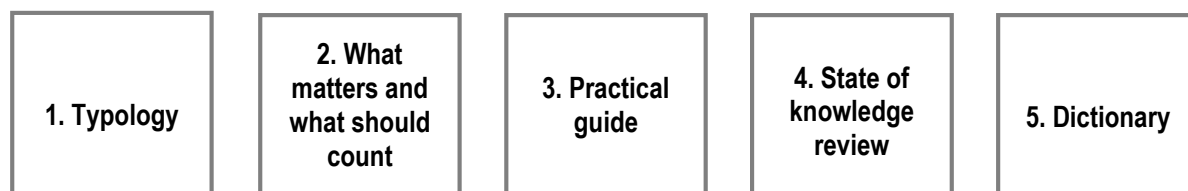
This report provides a conceptual map for analyzing adult learning outcomes. It is one in a series of papers that have informed the development of an analytical framework for the *Adult Learning and Returns to Training Project*. The project is a three-year multi-disciplinary and collaborative effort to further the knowledge base of conceptual, analytical and methodological issues concerning the scope and measurement of adult learning activities and their associated financial and non-financial returns to individuals, firms and society at large.

This report has 2 broad objectives:

1. First, to set the stage for ongoing dialogue by providing an overview of some of the key issues related to public investments in adult learning for less educated and lower skilled workers.
2. Second, to present a conceptual map that lays the ground work for the development of an analytical framework that specifies what should count in estimating returns to adult learning.

## Companion reports

The analytical framework for the *Adult Learning and Returns to Training Project* consists of five companion reports. The first report is the *Typology*. The *Typology* report proposes a typology of adult learning activities created for this project. This report, *What Matters and What Should Count*, provides a high-level conceptual framework for understanding a wide range of outcomes associated with various types of adult learning. The third report, the *Practical Guide* is intended to be a user-friendly guide to understanding key methodological issues in the literature on returns to adult learning. The fourth piece is the *State of Knowledge Review*, which reviews the existing literature and summarizes what we know and do not know about the efficacy of various types of adult learning. The fifth piece is a *Dictionary* report that defines key terms related to various types of adult learning. The fifth piece is a *Dictionary* report that provides definitions for key concepts from all of the companion reports.



## Framing the issue

### Human capital investment as social policy

A major story in North American labour markets is the changing world of work for workers without a post-secondary credential (Bernhardt, Dresser, & Hatton, 2003). Over the past 30 years, long term structural changes faced by employers and their responses have worsened labour market outcomes for workers with high school education or less. Even the extremely tight labour markets of the 1990s, which resulted in the lowest unemployment rates in thirty years, did not allow the real earnings of male high school graduates to return to 1970s levels. Less educated women have fared only slightly better (Blank, Danziger, & Schoeni, 2006). The economic restructuring associated with the recession of 2008 resulted in substantial job loss and exacerbated the already vulnerable position of less educated workers.

In a changing economy and society, providing pathways that extend beyond an individual's initial phase of education has become essential. Over the next ten years, more than two-thirds of new jobs created are expected to be in occupations that require postsecondary education (Lapointe, Dunn, Tremblay-Côté, Bergeron, & Ignaczak, 2006). Restructuring in the manufacturing sector has meant that skills upgrading and retraining is required for large numbers of long-tenured workers. Most experts agree that demand for highly skilled, adaptable workers will continue to grow.<sup>1</sup> At the same time, there is growing recognition of the need for greater social and economic inclusion of several sub-groups of the Canadian population, including Aboriginal people, immigrants, and people with disabilities. Ongoing learning among these groups is seen by many observers as crucial to facilitating fuller participation not only in the labour market, but in Canadian society more broadly. Indeed, throughout the post-industrial world, economic and social policy prescriptions have intersected around the importance of learning and skills development.

Responding to these conditions, federal and provincial governments have launched major initiatives designed to encourage human capital investment later in life. There remain however, considerable knowledge gaps related to the potential of policies that encourage human capital investment to benefit individuals who reach adulthood with low levels of educational attainment. Indeed, the standard conclusion from adult learning studies is that, far from providing an opportunity for "second chance" education, life-long learning is the exemplar *par excellence* of the "rich getting richer." As Table 1 indicates, individuals with low levels of initial education are considerably less likely than their more educated counterparts to participate in any type of job-related adult education and training (De Broucker, 1997; Peters, 2004).

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<sup>1</sup> Demographic trends suggest that maintaining the number of post-secondary graduates in coming years will prove challenging. The size of the young adult population will continue to grow in the short term. However, within 20 years the pool of postsecondary-aged Canadians will be considerably smaller than it is today. Canada's Office of the Chief Actuary (2008) estimates that while PSE enrolments will increase by 20,000–30,000 between now and 2014–15, they will then begin to decline rapidly, falling below current levels by 2016–17.

**Table 1** Percent of all Canadians in the labour force who participated in job-related formal learning by initial educational attainment

|                                            | University<br>or more | Non-university<br>post-secondary | High school<br>or less | All groups |
|--------------------------------------------|-----------------------|----------------------------------|------------------------|------------|
| Any formal job-related learning            | 47.5                  | 35.6                             | 17.9                   | 35         |
| Formal schooling in a “for credit” program | 14.3                  | 11.3                             | 3.9                    | 11.9       |
| Non-formal (non-credit)                    | 44.8                  | 32.3                             | 16.0                   | 30.1       |

Source: Myers and de Broucker 2006

While some analysts argue that the solution is to implement policy to encourage the least educated to increase their participation (OECD, 1999; OECD, 2003a; OECD, 2003b), others claim that such strategies are likely to be ineffective and inefficient (Esping-Andersen, 2001; Esping-Andersen, 2004; Heckman, 2000; Heckman, Lochner, & Taber, 1998; Lefebvre & Merrigan, 2003). Thus an important public policy question is whether the educationally disadvantaged would improve their labour market situation were they to pursue more education and training. Would similar benefits accrue to individuals who enter the labour market without a post-secondary credential but make an investment in their own human capital later in life?

Prominent human capital theorists such as James Heckman have argued that human capital investment is particularly risky for less skilled adults (Heckman, 2000; Heckman, Lochner, & Taber, 1998; Lefebvre & Merrigan, 2003). The crux of this argument is that because skills acquisition is a cumulative process beginning in early childhood, less skilled adults may not have the necessary learning skills to benefit from adult learning. As a result, human capital investment is inevitably an inefficient strategy for individuals who reach adulthood with low levels of initial education. While the importance of early childhood education is well-established (Currie, 2001), the bulk of the evidence underlying Heckman’s argument comes more specifically from the program evaluation literature on (primarily US) government-sponsored training programs.

Reviews of the US evidence suggest that government-sponsored training programs are indeed associated with generally poor results (LaLonde, 1995; US Department of Labor, 1995; Heckman, LaLonde, & Smith, 1999). For disadvantaged adult men, effects are often small and in some cases negative. Impacts for out-of-school youth are even less impressive. But while some commentators have used this work to conclude that “second chance” training is inevitably an inefficient investment (Esping-Andersen, 2001; Esping-Andersen, 2004; Lefebvre & Merrigan, 2003; Carneiro & Heckman, 2003), others have questioned this conclusion. Even Heckman (2000) acknowledges that government-sponsored training programs have been shown to provide positive outcomes for some categories of workers, especially less educated women (See the *State of Knowledge Review*). Indeed, in a review of the Canadian evidence, Park et al. (1996) found significant gains from training programs for women re-

entering the workforce.<sup>2</sup> Similarly, training programs for displaced workers (who typically have considerable work experience and are highly motivated) are also associated with positive outcomes (Jacobson, LaLonde, & Sullivan, 2005).

Moreover, there is mounting evidence that not all government training programs are created equally. As Martin and Grubb (2001), and Plesca and Smith (2000), conclude, there is considerable evidence suggesting that public training programs can be made more effective by improving their design. Finally, as many observers have noted, the limitations of a very specific type of training – government-sponsored programs – should not be generalized to other forms of adult education such as formal education or employer-sponsored training that may be qualitatively different on many counts including target audience (Ahlstrand, Bassi, & McMurrer, 2003; Giloth, 2004). While government programs tend to be narrowly targeted towards the long-term unemployed, formal academic institutions target their adult education programs to learners with a wide range of labour market experience. Moreover, post-secondary institutions typically offer programs that are widely recognized and provide strong signals to employers. Indeed as our *State of Knowledge Review* concludes, most studies that assess the efficacy of returning to formal schooling later in life find positive results.

## Why do so few low-skilled adults participate – is there is a market failure?

Why do so few less educated adults participate in adult learning? The presence of positive results for some types of adult learning suggests that there is a pool of individuals who would benefit from “second chance” learning opportunities. But the question from a policy standpoint is just how big this pool is. The concern is that policies to encourage more individuals to participate may not produce the same positive effects if they result primarily in increased participation of individuals with “low” rather than “high” potential. This concern arises from the underlying issue of whether the relationship between education and labour market outcomes is truly *causal* or is instead the result of unmeasured variables such as differences in the ability or motivation of participants versus non-participants (Sweetman, 2002). This issue of “self-selection,” as it is often called, is important not only for the theoretical question of how we should interpret the relationship between earnings and schooling, but for determining the emphasis that should be placed on education in public policies (Riddell, 2006). For a more detailed discussion of this and other methodological issues see the *Practical Guide*.

Some commentators argue that less educated adults are less likely to participate in adult education and receive training from their employers because they are less likely to benefit than their more educated counterparts. Indeed, this is one of the major claims underlying the work of Heckman (2001) and his colleagues. But consider the case of individuals who did not pursue post-secondary education perhaps because of low family income, credit constraints, or family socialization that did not emphasize the importance of education. For these individuals, low levels of initial education may be primarily due to

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<sup>2</sup> It is worth mentioning that US studies tend to focus on programs that target long term social assistance recipients who have marginal labour market attachment and often with multiple barriers. Whereas in Canada, because studies have focused largely on programs targeted to EI recipients, they include individuals much higher in the earnings/education distribution. The target audience for youth programs is also different across countries. For example, Canada's youth employment strategy (YES) explicitly targeted high ability students whereas the American equivalent focused on highly disadvantaged youth.

above average costs of additional education rather than below average expected returns (Riddell, 2002, Card, 1994; Card, 1995). From this perspective, the *participation gap in adult education* does not necessarily reflect only ability but instead may also reflect the fact that less educated adults are more likely to face barriers to participation such as cost and lack of employer support.<sup>3</sup>

The general principle of investment behaviour for individuals is that they undertake investments as long as the expected private incremental present value of the investment exceeds the equivalent costs,<sup>4</sup> including psychic/psychological costs and benefits such as the consumption value of education (which may be negative if there is a distaste for education), and the costs/benefits associated with such factors as peer pressure and deviating from, or acquiescing to, social norms. However, in practice this principle is not usually fully implemented in researchers' estimates of the returns to education since estimates do not usually account for the reality that individual actions are embedded in a context of social relations and institutional frameworks (Bourdieu & Passeron, 1977; Estevez-Abe, Iversen, & Soskice, 2001; Granovetter, 1985; Smelser & Swedberg, 1994).<sup>5</sup> Under this scenario a policy intervention designed to increase educational attainment by overcoming such factors as psychological and informational barriers could have a substantial payoff and may in fact exceed the average return in the population.

In an extensive survey of the literature Card (1999) concludes that it is very likely that those who would drop out of high school if they were they not constrained by compulsory schooling laws have higher than average rates of return to education. These individuals perhaps dropped out because of misinformed expectations and/or social pressure. This broad area of research motivated Ontario's *Panel on the Role of Government* to recommend increasing the province's compulsory schooling age (Sweetman, 2003; Panel on the Role of Government in Ontario, 2004). In a recent U.S. study Bettinger and his colleagues (2009) use a random assignment research design to test whether simplifying the college application process and providing better financial aid information can improve college access for individuals from low to moderate income families. They found that individuals who received assistance with their application and information about aid were substantially more likely to submit the aid application, enrol in college the following fall, and receive more financial aid. These results

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<sup>3</sup> Of course we can also argue ability is not necessarily innate, and may be shaped by financial factors such as parents who can afford to pay for tutors for their children or enrich their learning environment through activities such as trips to museums.

<sup>4</sup> Note that this basic concept can be expressed in a variety of ways. For example, setting the marginal costs of education equal to the marginal benefits can also be expressed as setting the internal rate of return equal to the market rate of interest. Moreover, there are several quite complex concepts embedded in this notion. For instance, the term "expected" implies that individuals are making forecasts based on current information about future benefits/costs. That information may be incomplete and/or incorrect. Normally, the expectation also ranges over a set of possible outcomes – at one extreme, students considering entering a particular program understand that there is some possibility that they will either find the program distasteful or not enjoyable and drop out, and/or too academically challenging and receive a failing grade. This range of outcomes implies that the individual's degree of risk aversion will play a role in the decision process. A broader discussion of this and other aspects of this decision process can be found in the "practical guide". Understanding the various elements of the decision process can assist in formulating public policies to improve adult learning outcomes

<sup>5</sup> Myers and de Broucker (2006) conclude in their review of Canada's adult education and training system, adults with low levels of initial education face multiple barriers to upgrading their skills.

suggest that simplification and providing information could be effective ways to improve college access. SRDC is currently conducting an experiment to test this hypothesis in the Canadian context.

As Borghans et al. (2008) and many others note, participation in training is driven not only by cognitive skills, but also by psycho-economic preferences (such as time discounting, risk preference, and preference for leisure) and personality traits (i.e., “noncognitive skills,” such as the Big Five personality factors, locus of control, and self-esteem).

To more fully address these issues, more research is needed that distinguishes between *outcomes* (observed changes in the outcomes of adults who participate versus those who do not) and *causal impacts*, which address the question of whether it was their participation that actually *caused* the observed change in outcomes rather than some third unmeasured factor (see Sweetman, 2002; Smith & Sweetman, 2001). In addition, to more accurately address the question of who among low-skilled adults should participate in adult education, the cost side of the equation needs to be addressed as well. The challenge here is that estimating the “true” cost of participation is not a straightforward calculation. The decision to participate in adult education or training must be weighed not only against direct costs of tuition and books, but also the “opportunity cost” of foregone earnings.

## Incorporating social outcomes into the mix

The term “social” has two related but distinct definitions in the context of rates of return to adult training, and education more generally. First, economists use the word “social” in contrast to “private” – as in “social costs/benefits;” or the social return, as opposed to the private return, to training. In this context social benefits or costs are those born by all of society, and not just the private decision-maker. In particular, there is concern about inefficiencies that arise from gaps between the value of private and social costs and benefits, which are sometimes referred to as externalities. A private decision-maker may make the optimal decision about the amount of education to obtain given his/her individual costs and benefits. However, that decision may have ramifications for society at large and therefore may not be optimal in a broader context. For example, a manager whose skill level improves as a result of training may thereby increase the productivity of other workers in his/her firm in a manner that does not benefit him/her personally and so does not enter into his/her private calculation about the appropriate amount of training to obtain. Similarly, a more highly educated individual may use fewer health care and social assistance resources, which impact, through the tax system, the rest of society. Secondly, the word “social” is sometimes used to refer to non-financial costs/benefits/outcomes. A “social outcome” of education or training might involve, for example, healthcare use, voting behaviour or the increased appreciation of literature/art. It is common for social outcomes (second definition) to have social benefits (first definition), but this need not always be the case.

A growing literature points to the causal impact of education on non-financial outcomes, which has ramifications for estimates of the “benefits” side of the cost-benefit calculation used in decision-making regarding education. It points to the need to consider not only financial gains from training, but also non-financial benefits (and costs) such as better health and the opportunity to provide a better future for the next generation (e.g., Grossman, 2006; Oreopoulos & Salvanes, 2009). Even if participation in adult learning does not result in financial gains that are sizable enough to offset the costs, if participation is associated with improving the educational performance of participants’ children (or

other children in society), this intergenerational effect alone may provide a strong enough rationale. Thus, potentially substantial “spill-over” or societal benefits should be factored into the equation as well. These benefits can be wide-ranging, from increased social cohesion to improved democratic processes.

But while incorporating non-financial and social returns may theoretically provide a more accurate picture of the full returns to adult learning, there is actually very little known about whether *adult learning* does indeed yield non-financial and social returns to the same extent as does learning that takes place as part of an initial education. While there are a handful of studies showing a positive relationship between adult learning and social outcomes, this research is in its infancy and suffers from many of the issues discussed above in terms of distinguishing outcomes or correlations from causal impacts (Sabates, 2007).

As a recent OECD report (2013) concludes, while there is growing evidence on the relationship between early childhood education, formal education and social outcomes, there is still very limited knowledge about the role of adult education in fostering these same outcomes. If a policy goal is to empower not only children but also adults to better tackle health and civic and social engagement issues, it is necessary to better understand how adults develop skills, attitudes and habits that lead to better social outcomes.

## Understanding the wider benefits of adult learning over the life course

Building a comprehensive understanding of the wider outcomes of adult learning requires a *life course perspective* that considers the dynamics of learning throughout the life course including: the changing constellations of risk and opportunity in early childhood; the transitions from secondary, further and higher education into employment; the opportunities for different groups of adult workers to engage in life-long learning; and the changing fortunes of older persons.

There is a large body of sociological literature that takes a life course perspective to human capital investment. The standard conclusion of this literature is that life-long learning is the exemplar *par excellence* of the “rich getting richer.” There is considerable empirical evidence to support this view. *Recent Canadian data indicate that individuals with a high school education or less are five times less likely than individuals with a university degree to participate in job-related adult education and training* (Myers & Myles, 2005).

Some sociologists has suggested that a major explanation for this striking participation gap can be traced to early childhood. There is a considerable body of research that concludes that an individual life changes are shaped both by *pathways of cumulative advantage* in which advantaged social origins lead to early school successes, timely post-secondary completion, higher wages at labour market entry, and further investments in human capital *and pathways of cumulative disadvantage*, in which less advantaged individuals leave school early, earn low wages and do not return to school as adults (Myers, 2009).

This literature points to the important role that social origins play in shaping opportunity and social mobility in a way that widens inequalities. Family of origin advantage leads to early achievements in the formal educational system. In turn, these achievements have fateful implications for educational

attainment throughout the life course. Early access to resources, facilitated by family of origin socio-economic status – especially parents' educational attainment – allows individuals to persist in high school, move quickly from secondary to post-secondary and complete post-secondary prior to entry into the labour market. Higher status at labour market entry facilitates the compounding effect of wages and asset accumulation and adds to other resources of economic advantage such as job security, benefits and further access to human capital investment (Bradburn, Moen, & Dempster-McClain, 1995; Elman & O'Rand, 2004; Felmlee, 1988; Moen, Dempster-McClain, & Williams, 1989; Teachman & Polonko, 1988). From this perspective, resource-building emerges as a time-ordered process, filtered through social institutions, so that current circumstances are outcomes of earlier institutional transitions and exposures (for example see Elman & O'Rand, 2004).

Of course a more fundamental mechanism that shapes pathways of cumulative advantage and disadvantage over the life course is the learning process itself. There is a substantial body of literature that demonstrates that the skills and abilities acquired as a young child positively affect learning and achievement that occurs later in life (Blundell, Dearden, Meghir, & Sianesi, 1999; Carneiro & Heckman, 2003; Cawley, Heckman, Lochner & Vytlačil, 2000; Heckman & Vytlačil, 2001; Murnane, Willett, & Levy, 1995). In other words, 'learning begets learning.' The cumulative nature of skills formation means that an individual's current stock of human capital provides both strong incentives and the foundational learning skills necessary for further investments in human capital. Put another way, successful and high quality early learning reduces the marginal cost of subsequent (adult) learning creating a virtuous circle for those who are fortunate enough to have conditions supportive of positive early learning outcomes.

But while the importance of high quality early childhood learning is well-established (e.g. Currie, 2001), the relationship between ability and educational choices, is not absolute. There is now mounting cross-national evidence that differences in ability explain only a portion of educational choices (Palameta, Myers, & Voyer, 2009).<sup>6</sup> As discussed above, the *participation gap in adult education* does not necessarily reflect only ability but instead may also reflect the fact that less educated adults are more likely to face barriers to participation such as cost and lack of employer support (See previous section for more discussion).

*Thus the key public policy question is whether well-designed adult learning programs can disrupt pathways of cumulative disadvantage and shift individual trajectories upward and place them on a pathway of reinforcing advantages.*

As we discuss in the *State of Knowledge Review*, we already know that the answer to this question for some types of adult learning activities is an unequivocal 'yes.' Numerous studies show that adults who participate in higher education and earn a PSE credential benefit from a substantial earnings premium. While this is good news, we also know that relatively few adults return to formal schooling. As Table 1

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<sup>6</sup> For example, Frenette (2007) found that in Canada the university participation ratio between the highest and lowest income quartiles was about 1.6; adding a measure of reading ability to the model reduced the ratio somewhat, but it remained at 1.3 to 1.4 for all ability levels. In other words, there was still a 20 percentage point participation gap between highly-skilled readers from low and high income backgrounds. The participation gap was substantially reduced (and thus explained) only after other variables such as grades, parental influences, and high-school quality were introduced into the model (Frenette, 2007).

(see above) illustrates, less than four percent of Canadian adults with an initial educational attainment of high school or less participate in higher education in any given year. More to the point, among adult who do engage in adult learning, only a small proportion (less than ten percent) engage in higher education. Adults with lower initial education are more likely to participate in other types of adult education and training, such as literacy and basic skills training where the effectiveness is much less certain. (See Rubenson & Elfert, 2013, for a detailed discussion of Canadian participation patterns). A key conclusion of our State of Knowledge Review is that not all adult learning is created equally. Quality matters tremendously. Benefits may potentially be wide-ranging, but they are not automatic.

## **Proposed approach to estimating returns to adult learning**

Given the above discussion, there are strong theoretical and practical reasons to hypothesize that participating in adult education and training may be associated with a wide range of benefits. Thus we recommend a comprehensive *cost-benefit approach* as an overarching framework for a comprehensive accounting of the benefits and costs associated with adult learning interventions. In our companion guide, *Practical Guide to Understanding Returns to Training Investments*, we argue that even if a full cost-benefit analysis is not conducted, the approach imposes a framework that allows analysts to explicitly recognize and value all the costs and benefits of a program.

We also argue however, that a cost-benefit analysis is a moot point if evidence of a causal benefit cannot be found. The conclusions of our *State of Knowledge Review* are informative here. Several rigorous studies found that participating in adult education was associated with few, if any, measured benefits. Thus in the *Practical Guide*, we outline a strategy for determining whether a study provides a credible estimate of a causal impact.

What follows in the rest of this report is a conceptual map that lays the ground work for specifying *what should count* in estimating returns to adult learning. While this map is ambitious in aiming to identify key concepts and specify a wide of potential benefits, our work is necessarily preliminary. Although the OECD has developed a sophisticated set of indicators for measuring the costs and returns to formal education, similar international work for adult education and training is still in its infancy. Our approach draws heavily on this emerging OECD work and borrows what it can from similar work on formal education, but there is much more work to be done.

# Conceptual framework

## The model

Figure 1 provides a high-level schema for differentiating the processes that lead to a broad range of learning outcomes. The schema is meant to be viewed top-down and begins with inputs and activities, and ultimately moves towards final outcomes which can be measured to estimate the return on investment (ROI). However, it should be interpreted dynamically as the relationships among learning, competence formation, and outcomes are likely non-linear and shaped in a reciprocal manner.

The learning activity is the type of learning in which adults actually engage. Learning activities can be classified as one of five broad types of learning: foundational learning, higher education, workplace learning, labour market advancement and personal/social. Inputs are broadly conceptualized as the financial and non-financial resources that go into the provision of the learning activity, as well as the financial and non-financial resources that are employed on the learner's part to engage in the learning activity. Outputs are more narrowly conceptualized to include the immediate, tangible products of learning such as contact hours.

Inputs, activities and outputs contribute to changes in learner outcomes. Outcomes are levels of behaviours or characteristics measured following a learning activity. We distinguish between two types of outcomes. Intermediate outcomes are those outcomes that are not typically of value in themselves, but valued because they support the attainment of final outcomes, which are the outcomes that individuals and society ultimately value.

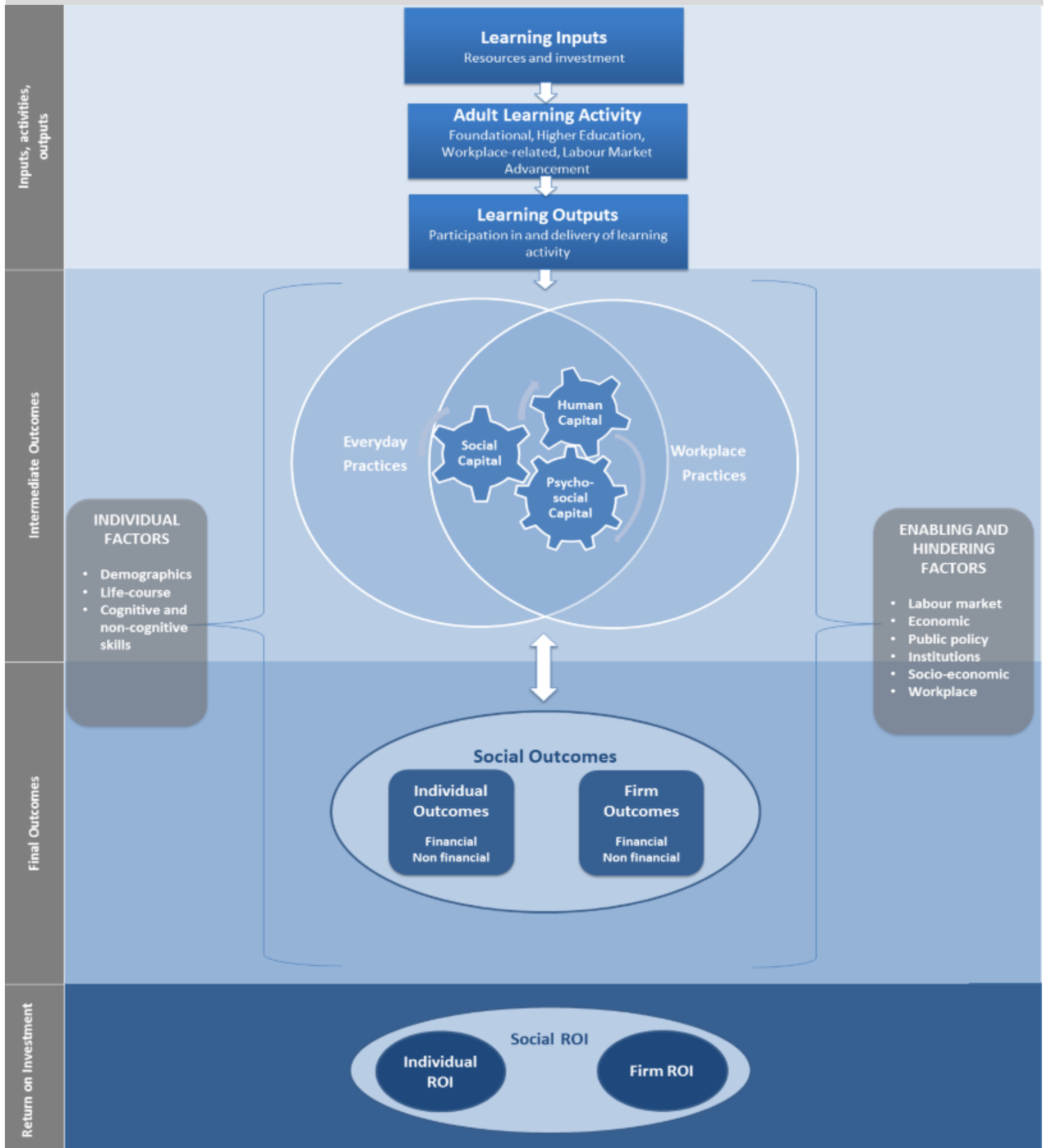
Changes in intermediate outcomes may lead to changes in final outcomes. A final outcome is related to the fundamental purpose of implementing, providing, funding, or participating in the learning activity, and represents a change of state among beneficiaries. It may be the consequences of one or more intermediate outcomes, although relationships between various final outcomes and between intermediate and final outcomes may be dynamic and non-linear. We distinguish between types of final outcomes depending on to whom they accrue (individuals, firms, society), and whether they are financial or non-financial.

Surrounding the model are the broad range of factors, including the personal and situational characteristics of learners, and any other contextual factors that may affect the attainment of intermediate and/or final outcomes. These factors represent a complex set of individual, socio-economic and political conditions that may affect outcomes at each stage of the process.

Finally, the framework includes the return on investment (ROI). The ROI is not a component of the causal chain hypothesized in our framework, but rather a measurement technique that allows for the calculation of the monetary value of a given learning activity. ROI can accrue to any party, individuals, firms, or governments that contribute to the inputs (financial or non-financial) of the activity.

**Figure 1 A high-level conceptual framework for differentiating the processes that lead to outcomes of adult learning**

This diagram is a schema for differentiating the processes that lead to a range of learning outcomes. It begins with inputs and outputs, moves toward intermediate outcomes, and ultimately to final outcomes which can be measured to estimate the return on investment. Surrounding the model is a range of factors that may affect outcomes at each stage of the process. The model should be interpreted dynamically, as relationships among various model components are likely non-linear and reciprocal.



## Box 1 Definitions

### The learning activity: Inputs and outputs

The learning activity in which participants engage can be classified into categories - foundational; higher education, workplace-related and labour market advancement – and described in terms of its form, provider, payer, purpose etc.

- **Inputs:** Financial and non-financial resources employed to provide/participate in the learning activity. Can be interpreted narrowly to include things like total expenditure per learner, class size, class materials, classroom hours and technology or more broadly to include things like degree of professionalization of instructors, instructors contracts, or delivery infrastructure.
- **Outputs:** Interpreted narrowly to include immediate, tangible (usually quantifiable) products or services of learning activities like contact hours.

### Intermediate outcomes

An outcome is the level of behaviours or characteristics measured following a learning activity. An intermediate outcome is not of value in itself, but is valued because it supports the attainment of final outcomes. Intermediate outcomes include human and social capital as well as changes in everyday behaviours and workplace practices.

- **Human capital** – Skills, credentials, and work experience
- **Social capital** – The size and quality of networks
- **Psycho-social capital** – Non-cognitive skills, such as self-efficacy, self-esteem, and motivation
- **Every day practices** – Includes a wide range of practices such as literacy practices like reading the newspaper or reading to a child or job search practices such as writing a resume or conducting an internet search
- **Workplace practices** – Includes a range of practices such as task efficiency or participating in meetings

### Final outcomes

A final outcome is an outcome that is related to the fundamental purpose of implementing, providing, funding, or participating in the learning activity. A final outcome represents a change of state among beneficiaries and may be the consequence of one or more intermediate outcomes. Note that relationships between various final outcomes and between intermediate and final outcomes may be dynamic and non-linear. We distinguish between types of final outcomes depending on to whom they accrue (individuals, firms, society). We also distinguish between outcomes depending on whether they are financial or non-financial.

- **Individual outcomes** – outcomes experienced by the learner or the learner's family.
- **Firm outcomes** – outcomes experienced by the firm in which the learner is employed.
- **Public outcomes** – outcomes that can be experienced by any citizen without reducing value to other citizens.
- **Social outcomes** – outcomes that accrue to those beyond the individual, their family or their employer.
- **Financial outcomes** – directly expressed as dollar figures such as earnings, sales revenues, and GDP.
- **Non- financial outcomes** – not directly expressed as dollar figures but are indicators of broader well being such as health status and social inclusion. Note: these outcomes can often be “monetarized” i.e., a dollar figure can be calculated.

### Returns

Return on investment: The net benefit or net cost of a learning activity relative to the investment, frequently expressed as a ratio or percentage (also known as the internal rate of return). Benefits and costs are estimated by conducting an impact study – that is, a study that credibly estimates outcomes in the counterfactual scenario and compares them to the outcomes observed and measured in the scenario in which the learning activity took place. ROI can be calculated from multiple perspectives, such as individuals, firms, or government/society.

### Individual, enabling, and hindering factors

The broad range of personal and situational characteristics of learners, and any other contextual factors that may affect the attainment of intermediate and/or final outcomes. Examples of factors include individual factors such as a learner's age, sex, employment status, life circumstance, and skills, as well as other factors such as macro-economic conditions, the regional labour market context, and incentive structures that exist in workplaces and government social programs.

## Model components

### The learning activity

*The learning activity is the course, workshop, seminar, or formal educational program in which adults actually participate.*

Various attempts have been made to classify types of adult learning. A standard approach among economists is to distinguish between types of adult learning based on who pays. The distinction is typically between employer-sponsored versus government-sponsored training. While this scheme may further distinguish between *firm-specific* versus *general training* or *classroom* versus *on-the-job training*, none of these distinctions say much about the type of education or training that is actually delivered in practice. For example, a government may sponsor a wide array of programs ranging from a short program that focuses on basic life skills to an advanced two-year college diploma program for a technical occupation that is in high demand in the labour market. Moreover, the employer versus government sponsored approach says little about training that learners pay for themselves.

The adult education literature, going back to Bryson (1936), contains several efforts to provide a typology of providers of adult education. However, most such studies target an academic rather than a policy readership and thus focus on understanding adult education as a field of educational activity. As such, existing approaches provide little guidance to policy makers or to adult learners trying to determine which types of adult learning make the best investments.

In the companion *Typology Report*, we argue that a first step to creating a more concrete and policy relevant typology is to describe the types of adult education and training in terms of how it is organized in practice. Of course in practice, adult learning experiences overlap and distinctions are blurred. For instance, trainees' goals do not necessarily coincide with the goals of a funder or provider and they frequently achieve unplanned or unanticipated outcomes and applications from learning. Making the task more difficult, there are innovative hybrid approaches to adult learning that deliver a combination of more than one learning type. For instance, career pathways initiatives--an innovative approach used in some US jurisdictions--deliver foundational learning in the context of a higher learning program such as a college certificate or diploma programs for occupations in demand.

With these caveats in mind, we proposed the following typology. The typology describes five broad types of adult learning according to how adult education and training is organized in practice (Figure 2). Types of adult learning can be further described in terms of who provides the program or course; who pays for it; the learner's purpose in taking it; the program duration and other design and delivery features (Table 2). Ideally we would embed these dimensions into the learning typology, but in practice this is simply not feasible. As we discuss in our Typology Report, within each major category of learning there are multiple providers, payers, and purposes.

As part of the empirical phase of this project, Rubenson and Elfert (2013) were commissioned to conduct a test of the robustness of proposed typology. The authors found that the typology was closely aligned with international efforts to create policy-relevant typologies, especially the recent efforts by UNESCO's International Standard Classification Of Education (ISCED) initiative. Both approaches use

learning activities as basic building blocks; both recognize the triad of formal, non-formal and informal learning; and both exclude incidental learning and make institutionalization a fundamental criterion in the classification scheme. The authors also identify two fundamental differences. First, ISCED (2013) stipulates that non-formal learning occurs in educational institutions, while the proposed adult learning typology finds it in many contexts. Second, while ISCED classifies learning activities according to the formal, non-formal and informal learning triad, the proposed typology uses the triad as an intermediate step in arriving at the five fundamental categories.

**Figure 2 Five broad types of learning**

| Foundational                                                                                                                                             | Higher education                                                                                                      | Workplace-related                                                                                                                                                          | Other - Labour market-related                                                                                                                      | Personal/Social                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Instruction on the basic skills and learning strategies required for further learning or employment, typically below the Grade 12 level or IALS Level 3. | Education or training that is offered by postsecondary education institution and leads to a postsecondary credential. | Learning related to the firm in which the learner is employed that is supported at least to some extent by the employer, but that is not Foundational or Higher Education. | Learning to improve labour market prospects, but is not related to firm in which learner is employed, and is not Foundational or Higher Education. | Learning directed to individuals in the context of their families and communities for the purpose of personal, social, cultural, civic, or spiritual growth or enrichment. |

Source: Adult Learning Typology Report (2014)

Further, Rubenson and Elfert's empirical test of the typology identified several significant limitations including concerns about the extent to which the five core categories could be designed in a way that was mutually exclusive. In particular, problems arose about what should be classified as workplace-related learning. Their analysis of Canadian data shows that employers play a major role in what we classify as non-formal foundational learning, providing 44 per cent of all the learning events.

However, while the authors identify several limitations with the typology and provide an extensive review of alternative international approaches, they ultimately do not put forward any concrete suggestions for a revised made-in-Canada approach. Indeed they conclude: *It is extremely difficult, and perhaps impossible, to produce a generic typology for adult learning given its nature. If any future typologies are attempted, a key lesson to be drawn from the current experience is that for a typology to be successful it needs to be constrained to be relevant to a very specific context and/or policy question. Moreover, the focus of the typology needs to be made clear to those employing it so that it is neither misapplied nor deemed unsuccessful by virtue of being inapplicable to a context for which it was not designed.*

Categorizing types of adult learning is an important area for further research. We recommend that this research start with by following major funding streams. This approach should be feasible for the federal government since in Canada the majority of adult learning is funded either by F/P/T agreements or by employers.

**Table 2    Types of adult learning by form, provider, payer, and purpose**

|                 | <b>Foundational</b>                                                                                                                                                                                          | <b>Higher education</b>                                                                                                                                                                                                     | <b>Workplace-related</b>                                                                                                                                                                                                                                                                              | <b>Other –labour market-related</b>                                                                                                                                                                                                                                                                      |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Form</b>     | Some types such as a secondary diploma program are classified as formal learning but many types are non-formal since they do not lead to a credential                                                        | By definition are formal learning programs that take place in a PSE institution and are part of program that leads to a recognized credential                                                                               | Typically non-formal or informal learning that takes place in the workplace or other venue organized by the employer (e.g., conference centre).                                                                                                                                                       | Non-formal or informal learning that does not lead to PSE credential and that takes place in a variety of settings, but in some cases may lead to industry certification.                                                                                                                                |
| <b>Provider</b> | Significant differences across Canada. Providers of non-formal courses may include colleges, school boards, community organizations, unions, workplaces, and sector councils.                                | Includes public colleges, private career colleges and technical institutes, and universities.                                                                                                                               | Typically provided directly by the employer or a training professional hired by the employer that may include colleges, industry associations and sector councils, professional associations etc.                                                                                                     | Includes public colleges, private career colleges and technical institutes, universities, industry associations, sector councils, professional associations, software developers, etc.                                                                                                                   |
| <b>Payer</b>    | Publicly-supported measures exist in all jurisdictions. Funding is provided to a range of providers. In some jurisdictions individuals on social assistance or EI can participate and retain their benefits. | Adult learners benefit from general public investment in PSE. In some jurisdictions, governments promote higher education as part of their workforce development. Employers may support workers to pursue higher education. | Usually the employer but in some cases unions, professional associations or sector councils may be involved as payers. In some jurisdictions governments provide incentives to firms to train lower skilled workers or to firms that may be in jeopardy of laying off workers or closing their doors. | Governments may pay for unemployed adults to take courses. Some employers have education funds that allow employees to take courses not directly related to their current or future duties in the firm. Unions may fund this type of training. Individuals may pay for this type of training themselves. |
| <b>Purpose</b>  | Targeted to adults who left initial education without a secondary diploma and/or who need to improve their skills to gain a job, advance in the labour market, and/or pursue further learning.               | Learners may pursue higher education for a variety of reasons including to obtain a post-secondary credential, to retrain, or to gain a Canadian credential.                                                                | Offered/organized by the employer to increase workplace performance, career development or because of legislation.                                                                                                                                                                                    | Learners pursue other labour market-related training in order to improve their labour market prospects.                                                                                                                                                                                                  |

Source: adapted from Adult Learning Typology Report (2014)

## Inputs

To deliver or participate in adult learning activities requires a variety of inputs. Inputs are the financial and non-financial resources employed to provide or participate in the learning activity. From a learner's perspective, inputs include such things as tuition and other learning-related fees, time invested in the learning, foregone earnings, and childcare expenses resulting from participation.

From a program provider perspective they can be interpreted narrowly to include things like total expenditure per learner and class size or more broadly to include things like the professionalization of instructors and the delivery infrastructure. We are not aware of any rigorous studies that investigate the relationship between inputs more broadly defined to include quality, and outcomes. Martin and Grubb (2001), and Plesca and Smith (2000), however, argue that program design matters and may have a significant impact on outcomes. This conclusion is echoed more recently in reviews of the literature by Ferrer and Riddell (2008) and Meager (2008). While little Canadian research exists on the nuanced role of these institutional features in training effectiveness, broader studies of the adult education system provide support for the notion that design and delivery matters.

Previous work by OECD (2013) has shown that measuring the direct expenditures of adult learning is fraught with challenges. Our environmental scan and literature review did not identify any proposed Canadian indicators for adult learning inputs. Indeed neither the federal government nor any of the provincial governments we consulted were able to identify standard cost estimates or cost categories for any of the various types of adult learning other than higher education. Because higher education is by definition provided by post-secondary institutions, we have accurate data about public expenditures for this type of learning.

But even with higher education we should proceed cautiously. One might be tempted to estimate the direct expenditures for adults in higher education by simply calculating the proportion of expenditures that correspond to the proportion of overall students who are considered "adults." However, this would be a mistake. While this calculation would be relatively straightforward, there is strong evidence to suggest that adults who have been in the labour force typically take much longer to complete their programs than younger adults who are participating in PSE as part of their initial education. Thus average costs for adults are typically much higher. Even more importantly, cost estimates should account for the fact that the majority of adults starting a higher education program do not complete it.

The OECD recently began work on a set of indicators to measure the inputs, outputs and outcomes associated with adult learning. While this work is still in its infancy, the proposed input indicators provide a reasonable starting point for further Canadian research. In this section, we draw heavily on the emerging OECD framework.

A comprehensive set of cost indicators must include a range of direct and indirect costs. Broadly speaking, costs to the individual include direct costs such as tuition fees, and indirect costs due to higher income taxes, social contributions levies, loss of salary because of delayed entry into the labour market, and fewer entitlements to social transfers, such as housing allowances, family allowances or supplemental social welfare benefits.

Costs must also include the opportunity costs of working time devoted to learning instead of productive work and the foregone earnings of persons who devote time to learning instead of working for pay. The opportunity costs due to the lost productive time of the workers can be estimated by using a measure of *labour cost* (OECD, 2013). For society, these opportunity costs could be reported directly or expressed as a percentage of annual costs for full-time work. An estimate of the total amount of the opportunity costs can be expressed as a percentage of GDP.

In order to be comprehensive, adult learning expenditures indicators should show *who* invests, the source of the funds and the location where the spending occurs. The *sources of investment* may include governments, private employers, and private individuals. Direct expenditures are borne by the source of investment. Opportunity costs for learning during paid working hours are borne by employers, while the foregone earnings are by definition borne by the private individuals. The *location of spending* may include public learning institutions, private learning institutions, and other organizations offering formal or non-formal education, communities.

Taking these considerations into account, there are four basic measurable dimensions:

1. Direct expenditures for non-formal education by source of funding and location of spending
2. Cost of working time devoted to non-formal job-related education
3. Expenditures of private households for learning goods for the adults in the household
4. Time for non-formal education per participant disaggregated for job-related versus education for personal reasons

Given these four basic measurable dimensions, the OCED recommends eight indicators that can be used to benchmark a nation's adult learning public and private expenditures. Table 3 provides a summary of these indicators including their policy relevance and how international comparisons can be made.

We recommend that future Canadian research attempt to operationalize these ten indicators using Canadian data. However, we note that the framework does not distinguish relative spending on types of adult education, so the question of optimal policy levers is not addressed. Importantly, we also note that the question of quality is not addressed unless one considers spending to be a proxy for quality. This is likely ill-advised since as research on the K-12 system demonstrates, overall increases in education spending do not necessarily produce higher quality. Indeed there is considerable evidence to suggest that quality is only weakly related to spending.

We note that the OECD 2013 policy framework report touches only tangentially on the issue of quality. In its discussion of teachers and trainers, the report refers to both the number of teachers and trainers and their initial training and ongoing professional development. The Canadian Learning and Literacy Network is currently conducting a ground-breaking survey that will provide a national picture of literacy and essential skills practitioners who work in a variety of capacities within the field. This will be a critical study since there is no other Canadian source on teachers and trainers in the adult learning system. The CLLN study will provide an important contribution to our understanding of teachers and trainers in the adult learning system. Further research should more directly address the question of quality. One potentially promising approach is to conceptualize quality in terms of provider organizations and focus on recognition of quality assurance procedures.

**Table 3 Input indicators related to adult learning costs/expenditures**

| Indicator                                                                                                                 | Policy question(s) that indicator contributes to answering                                                                                                                                                 | Suggested approach for international comparison                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1. <b>Direct expenditures for non-formal education by sources of funding and type of provider</b>                         | How much do enterprises spend training their employees? What is the funding source for other providers? What is the amount spent by other providers to finance the non-formal education organized by them? | <ul style="list-style-type: none"> <li>Compare amounts between countries and distribution of funds between categories</li> </ul>    |
| 2. <b>Expenditure of private households for educational goods for adults</b>                                              | How much do private households spend on educational goods for the adults in the household?                                                                                                                 | <ul style="list-style-type: none"> <li>Compare the amounts between countries</li> </ul>                                             |
| 3. <b>Annual costs of working time devoted to non-formal job-related education per participant</b>                        | What are the opportunity costs of non-formal job-related education for employers?                                                                                                                          | <ul style="list-style-type: none"> <li>Compare amounts, ratios of annual labour costs and ratio of GDP between countries</li> </ul> |
| 4. <b>Expected costs of working time devoted to non-formal job-related education over the working life of an employee</b> | What are the expected opportunity costs of non-formal job-related education for employers over the working life of an employee?                                                                            | <ul style="list-style-type: none"> <li>Compare the amounts between countries</li> </ul>                                             |
| 5. <b>Expenditure for adult learning activities as percentage of GDP</b>                                                  | What is the part of GDP invested in non-formal education? Which is the distribution according to the sources of funding?                                                                                   | <ul style="list-style-type: none"> <li>Compare the rates and the distributions between countries</li> </ul>                         |
| 6. <b>Mean hours per participant in non-formal education</b>                                                              | How much time does the average participant devote to non-formal education in a year? Is the time invested in job-related education or in non-formal education for personal reasons?                        | <ul style="list-style-type: none"> <li>Compare the amounts between countries</li> </ul>                                             |
| 7. <b>Mean hours per adult in non-formal education</b>                                                                    | How much time in non-formal education is invested in an adult per year? Is time invested in job-related or education for personal reasons?                                                                 | <ul style="list-style-type: none"> <li>Compare the amounts between countries</li> </ul>                                             |
| 8. <b>Expected hours over the working life in all and in job-related non-formal education</b>                             | How much time will an average individual devote to non-formal education over his or her working life? What proportion of a full-time working year does this represent?                                     | <ul style="list-style-type: none"> <li>Compare the amounts between countries</li> </ul>                                             |

Source: adapted from OECD, 2013.

## Outputs

We define adult learning *outputs* narrowly to include the immediate, tangible products and services of learning activities such as participation, contact hours or credentials earned. Analyzing outputs can indicate the extent to which a learning activity was delivered and to which resources were used as intended.

We are not aware of any studies that investigate the relationship between outputs and outcomes. Indeed, existing literature is overly dependent on one-dimensional output measures such as participation rates. Even in otherwise high quality studies, participation in adult learning is often measured in binary terms as either one or zero. Apart from binary participation rates, volume is typically the most important indicator in adult learning surveys.

As with the issue of inputs, there is often an assumption that “more is more” both in terms of the number and duration of the learning episodes. There is emerging evidence to suggest that this bias should be re-thought. For example, evidence from a large scale study of adult learners in Washington State, suggests that shorter, more accelerated learning pathways are significantly more effective in terms of generating employment and earnings outcomes than longer more traditional pathways (See the State of Knowledge Review for more details). The findings of this seminal study encouraged numerous US jurisdictions to experiment with innovative approaches to accelerating adult learning pathways. In these jurisdictions, a higher average number of hours per learner is now seen as an indicator of a lower rather than a higher performing system.

A second related issue is that the vast majority of adult learning activities takes place in the workplace and consists of short one-to two-day courses that do not result in a recognized certificate. Under this scenario, it is likely more important to have a gauge of the cumulative impact of adult learning activities over a longer period of time. However this scenario is much easier to conceptualize than it is to measure.

While historically a very low proportion of adult learning activity is associated with a recognized PSE credential (approximately 10%), recently, in an effort to ensure that adult learning supply is more closely linked to employer demand, there has been increasing policy emphasis on adult learning activities that produce industry-recognized credentials. Thus our framework strongly recommends that industry-recognized credentials also be considered as a core output indicator.

We are not aware of any studies that investigate the relationship between outputs and immediate and/or final outcomes of interest. This is an important area for further research. This could be done, in part, using existing national and provincial administrative data but will likely require additional data capture requirements for adult education and training activities that are funded with public investments.

## Intermediate outcomes

An intermediate outcome is the level of behaviours or characteristics measured following a learning activity that is not of value in itself, but valued because it supports the attainment of final outcomes. Intermediate outcomes of adult learning activities may include human capital, psychosocial capital and social capital, as well as changes in everyday behaviours and workplace practices.

### Human capital

Human capital is the stock of knowledge and skill that an individual possesses as a result of education, training, and experience. It is the most anticipated outcome of training since training is usually implemented with the intention of enhancing knowledge and skill.

Broadly speaking there are three types of human capital indicators: educational attainment, work experience and direct measures of skills. The relationship between educational attainment, work experience and labour market outcomes is well established. Numerous Canadian surveys and nationally held administrative datasets contain information about educational attainment and work experience (Box 2).

In addition, there is a broad literature that suggests cognitive outcomes are key indicators of the success of a nation's education system, especially in the economic domain. Individual-level measures of skill have very substantial correlations with labour market success. For example, Green and Riddell (2003) study individual-level IALS scores in relation to earnings and find a sizeable effect with these simple test scores accounting for a substantial fraction of the return to education. Two Canadian data sets including the new Programme for the International Assessment of Adult Competencies (PIAAC) provide national representative data on direct measures of skills.

However, while PIAAC provides strong evidence for the importance of literacy skills, it is cross-sectional data and thus cannot disentangle cause from effect and thus cannot tell us whether participation in adult literacy programs increases an individual's stock of literacy skills.

Several standardized tests (such as TOWES and Herzog) have been developed to measure skills and are increasingly used in evaluations of publicly funded adult training programs, however this data is not systematically collected. This is an important area for further attention. In order to encourage the collection of this data, future funding could potentially be tied to collecting this information. In addition, more attention should be given to ensuring that these standardized tests are in fact valid and reliable measures of skills gains.

As part of two HRSDC-funded program evaluations (UPSKILL and Measures of Success) self-report indicators of skill confidence and practice were developed to measure perceived changes in these areas as a result of adult learning (see Box 3 for a list of self-rated skill indicators). We recommend that future Canadian adult learning research experiment with self-report indicators and systematically explore the relationship between an individual's self-assessment and actual objective skills measures.

## Box 2 Data sources for types of education and training

Human capital indicators for the highest level and types of education and learning an individual has completed are collected in many different Statistics Canada surveys. However, more detailed information on different types of learning tend to be collected in different surveys and administrative databases. This table lists data sources for specific types of adult learning (See Frenette, Grekou & Wannell 2014 for more detail)

| Highest level of education                                        | Foundational           | Workplace training            | Post-secondary                | Trade certification | Other- labour market (EI sponsored training) | Targeted population training (e.g. aboriginal, youth) |
|-------------------------------------------------------------------|------------------------|-------------------------------|-------------------------------|---------------------|----------------------------------------------|-------------------------------------------------------|
| Multiple surveys including Census & LFS and surveys in this table | ASETS<br>SLID<br>PIAAC | WES<br>ASETS<br>SLID<br>PIAAC | ASETS<br>SLID<br>PSIS<br>RAIS | RAIS                | BNOP<br>EISV                                 | EBSM<br>AHRDA<br>TIOW<br>LMAPD<br>YES                 |

### Box 3 Self-rated skill indicators

|                                                                                                                                                                                                   | Response             |                   |                    |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------|--------------------|----------------|
| The next questions are about how confident you feel in doing various activities                                                                                                                   | Not At All Confident | Not Too Confident | Somewhat Confident | Very Confident |
| 1. How confident are you in your ability to read fiction (stories, novels)?                                                                                                                       | 1                    | 2                 | 3                  | 4              |
| 2. How confident are you in your ability to read non-fiction? (e.g., history, religious, science, self-help books; reference materials; news sections of newspapers and current affairs websites) | 1                    | 2                 | 3                  | 4              |
| 3. How confident are you in your ability to write notes, letters or email?                                                                                                                        | 1                    | 2                 | 3                  | 4              |
| 4. How confident are you in your ability to use a home computer?                                                                                                                                  | 1                    | 2                 | 3                  | 4              |

|                                                                                      | Response          |          |         |       |                |
|--------------------------------------------------------------------------------------|-------------------|----------|---------|-------|----------------|
| 5. Please indicate whether you agree/disagree with each of the following statements: | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
| a) I am good with numbers and calculations.                                          | 1                 | 2        | 3       | 4     | 5              |
| b) I feel anxious when figuring out such amounts as discounts, sales tax or tips     | 1                 | 2        | 3       | 4     | 5              |

|                                                                                                                                                                  | Response |        |                       |             |                    |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|-----------------------|-------------|--------------------|-----------|
| The next questions are about how often you do various activities                                                                                                 | Never    | Rarely | Less than once a week | Once a week | A few times a week | Every day |
| 6. How often do you do math (such as for bills, bank accounts or credit cards)?                                                                                  | 0        | 1      | 2                     | 3           | 4                  | 5         |
| 7. How often do you read fiction (stories, novels)?                                                                                                              | 0        | 1      | 2                     | 3           | 4                  | 5         |
| 8. How often do you read non-fiction (e.g., history, religious, self-help books; reference materials; news sections of newspapers and current affairs websites)? | 0        | 1      | 2                     | 3           | 4                  | 5         |
| 9. How often do you use a library or visit a bookstore?                                                                                                          | 0        | 1      | 2                     | 3           | 4                  | 5         |

## Social capital

Recent research suggests that other forms of capital such as social capital likely matter as well. We define social capital using a social network approach, which emphasizes network characteristics that are measurable and can be influenced by programs. According to this approach, social capital is a resource that arises from social networks, the value of which stems from the fact that it can open up access to other resources, depending upon the characteristics of the network (Levesque & White, 1999; Woolcock, 2001; Policy Research Initiative, 2003; Gyarmati & Kyte, 2003). In other words, the value of social capital at an individual level depends on the resources to which it can be converted, which are in turn, a function of network size and structure.

This definition distinguishes social capital from activities to which it may be related, such as volunteering and civic engagement. The foundational learning literature points to the development of social capital as a key intermediate outcome of adult learning that may play an intervening role in the realization of several socio-economic final outcomes. More developed and heterogeneous networks can provide more links and access to labour market resources. Social capital as an intermediate outcome of training may occur as a result of participation in isolation from any possible skills gains, or it may be a co-requisite for skills gains.

While there are no survey or administrative holdings with robust indicators of social capital, ESDC has invested in a number of recent research projects that have developed or refined social capital indicators. For example, the Community Employment Innovation Project pioneered an approach that allowed researchers to observe increases in social capital in terms of the number of contacts individuals can rely on for support, like specialized advice or help finding a job, after participating in a job placement program. Findings from the Community Employment Innovation Project also illustrate how social capital relates to final outcomes, as the vast majority of individuals who used their networks for job search assistance were also likely to have worked full-time by the end of the study period. Several recent Canadian adult learning research projects have followed the approach developed by the Community Employment Innovation project and have operationalized social capital in terms of network size, diversity and quality. For example Measures of Success found that learners that participated in a workplace training program increased their network size and its diversity.

Box 4 provides two approaches to measuring changes in social capital. The first approach was used in three ESDC funded studies – *Community Employment Innovation Project*, *UPSKILL* and *Measures of Success*. The second more streamlined approach is currently being tested in two additional ESDC-funded studies – *The Foundations Workplace Skills Program* and the *Pay for Success Demonstration Project*. We recommend that future Canadian adult learning research project follow this same approach.

#### Box 4      Social capital indicators of network size and diversity

|                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>VERSION DEVELOPED AS PART OF THE COMMUNITY EMPLOYMENT INNOVATION PROJECT</b>                                                                                                                                                            |
| <b>1.</b> Circle your response to answer approximately how many individual contacts – including relatives, close friends or acquaintances – you have from whom you could easily:<br>(Response options range between none and more than 10) |
| a) get help with household activities (such as child care, household maintenance, household chores, personal care).                                                                                                                        |
| b) get specialized advice (such as financial, medical or legal advice).                                                                                                                                                                    |
| c) get emotional support (such as encouragement, reassurance, confidential advice).                                                                                                                                                        |
| d) get help with your job or career (assisting with your current job, or recommending you to a potential employer).                                                                                                                        |
| <b>2.</b> How many different people are there in questions 44 a, b, c and d who you can call on for at least one of these kinds of help?<br>(Response options of Q2-5 range from all to none)                                              |
| <b>3.</b> How many of these contacts on your list would you say know each other?                                                                                                                                                           |
| <b>4.</b> How many of these contacts do you know from work – either now or in the past?                                                                                                                                                    |
| <b>5.</b> How many of these contacts would you say are working in completely different occupations than you?                                                                                                                               |

#### MORE STREAMLINED VERSION

|                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. If I need help with household activities (such as child care, household chores, personal care) I can easily get it                                                                                                                                                                                                |
| 2. If I need specialized advice (such as financial, medical or legal advice), I can easily get it                                                                                                                                                                                                                    |
| 3. If I need emotional support (or someone to lean on) I can easily get it                                                                                                                                                                                                                                           |
| 4. If I need help with my job or career (such as assisting with my current job), I can easily get it                                                                                                                                                                                                                 |
| 5. Thinking of all the people (including family, friends, and people you know) who can give you help and support in all four areas: <ul style="list-style-type: none"> <li>• Help with household activities</li> <li>• Specialized advice</li> <li>• Emotional support</li> <li>• Help with job or career</li> </ul> |
| 6. ...In <u>total</u> about how many people would that be?                                                                                                                                                                                                                                                           |
| 7. Thinking of all the people (including family, friends, and people you know) who can give you help and support in the same four areas – how many of these people would you say know each other                                                                                                                     |

## Psychosocial capital

Learning activities may also lead to changes in what is sometimes referred to as ‘psychosocial capital’ non-cognitive skills or ‘soft skills.’ These skills lie outside of the realm of cognitive skills but influence the overall behavior of the person. There is a wide range of potentially useful indicators of psychosocial capital, such as: *resilience* (the ability to cope with stress and to thrive in difficult situations); *locus of control* (the degree to which an individual feels they can control the events that affect them); or *future orientation* (the extent to which an individual is oriented towards their future as opposed to their past or present).

Participation in adult learning may affect psychosocial capital in different ways, but likely matters through effects on self, particularly in terms of the capacity to make choices in life and follow through on them. The outcomes of human, social and psychosocial capital may be mutually reinforcing, or some might occur while others do not. For instance, Benseman and Tobias (2003) reported that while improvement in literacy skills almost invariably resulted in greater self-confidence, improvements in self-confidence could occur with little or no change in literacy skills.

Although there are currently no survey or administrative holdings with indicators of psychosocial capital, but ESDC has invested in recent research projects that have developed or refined social capital indicators. Indeed the role of psychosocial capital as an intermediate outcome of adult learning and a potential mediator of adult learning on final outcomes of employment or income, is emerging as a promising area of research.

These studies have tended to develop indicators by selecting and adapting items from standardized scales. Indicators are typically selected to align with the goals of the training. For example, *attitudes towards learning* and *future orientation* indicators were included in a recent program evaluation of a British Columbia workplace literacy and essential skills training program that included curriculum content on the value of learning and the importance of looking to the future and seeing a long-term career path in the trainee’s industry. Results indicated that learners showed more positive attitudes towards learning and more future oriented attitudes both immediately after completing their workplace training program, and one month following program completion. Improved self-esteem and motivation and engagement in work were also observed. Box 5 illustrates the indicators that were used in the British Columbia study. While these indicators were effective at capturing change over time in this intervention, it is important to emphasize that there is a wide range of indicators and that in a program evaluation context, psychosocial indicators should be selected that are aligned with the specific goals of the program.

## Box 4 Psychosocial capital indicators used in the British Columbia Workplace Training Evaluation

### SELF-ESTEEM

(Response options: Strongly disagree, Disagree, Neutral, Agree, and Strongly Agree)

I see myself as someone who has high self-esteem.

### Future Orientation

'How characteristic or true is this of you?'

(Response options: Very Untrue, Somewhat Untrue, Neutral, Somewhat True, Very True)

- a) I make decisions on the spur of the moment (i.e. with little thought)
- b) Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play (e.g., before recreation or relaxation)
- c) Generally, I am more focused on what is going on now than on what will happen in the future.
- d) Since whatever will be, will be, it doesn't really matter what I do (i.e., I can't affect the future)
- e) You can't really plan for the future because things change so much

### MOTIVATION AND ENGAGEMENT IN WORK

(Response options: Strongly disagree, Disagree, Neutral, Agree, and Strongly Agree)

- a) On the whole, I believe I do a good job
- b) In my job I'm focused on learning and improving more than competing and being the best
- c) I believe that what I do at work is important and useful
- d) I try to plan out the things I have to do in my job
- e) In my job, I use my time well and arrange my work area so that I can work under the best conditions
- f) I persist in my job even when it is challenging or difficult
- g) I get quite anxious in my job
- h) If I work hard in my job it's usually to avoid failing or disapproval from my boss or colleagues
- i) I don't think I have much control over how well I do in my job
- j) I find I sometimes reduce my chances of doing well in my job (e.g. waste time, not try hard, procrastinate)
- k) I often feel like giving up in my job

## Every day practices

Changes in a learner's level of human, social, and psychosocial capital may lead to changes in practices. We distinguish between a learner's everyday practices and workplace practices. Every day practices include a wide range of practices in which individuals engage in their everyday lives such as literacy practices like reading the newspaper or reading to a child or conducting an internet search. There is some evidence in the foundational learning literature to suggest that learning can affect every day practices such as participating in further learning, participating in children's learning, bonding with family and friends or coworkers and engaging in healthier practices.

Few Statistics Canada and ESDC data sources include indicators of relevant everyday practices. PIAAC data contains information on everyday practices of reading, writing, numeracy, problem-solving, technology use, interaction with others, learning, and organization and planning. The time use cycle of the General Social Survey may also contain useful information for this thread of research. The efficacy of large scale surveys versus program evaluation in differentiating among a range of similar activities remains an open question.

## Workplace practices

Workplace practices include a range of practices such as task efficiency or participating in meetings, or any other practice in which individuals engage on the job or when interacting with colleagues. The literature on literacy and essential skills training in the workplace reports several workplace practices and behaviours as training outcomes, such as: being receptive to further workplace training; being able to learn more complex skills and to learn skills more quickly; improved "soft skills" such as communication and problem solving skills; increased ability to cope with change and adapt to new processes or products; increased ability to follow instructions, make fewer errors, work faster; take initiative, solve problems.

Current Statistics Canada and ESDC data sources do not include indicators of workplace practices as intermediate outcomes at the individual level. Like every day practices, development of workplace practice indicators are best done in the context of specific program evaluations as they tend to be subtle and context-specific and thus difficult to measure.

## Final outcomes

A final outcome is an outcome that is related to the fundamental purpose of implementing, providing, funding, or participating in the learning activity.<sup>7</sup> A final outcome represents a change of state among beneficiaries and it may be the consequence of one or more intermediate outcomes. We distinguish between types of final outcomes depending on to whom they accrue: individuals (and their families), firms, or society/government. Outcomes that accrue to individuals, their families or their employers are considered private outcomes, while outcomes for governments and broader society are considered social outcomes. We also distinguish between outcomes depending on whether they are financial or non-financial. Financial outcomes can be directly expressed as dollar figures such as earnings, sales revenues, and GDP. Non-financial outcomes are not directly expressed as dollar figures but are indicators of broader wellbeing such as health status and social inclusion. Non-financial outcomes can often be “monetarized” in that they can be assigned a dollar value, although this generally requires sophisticated calculation techniques (see Table 4 for examples of outcomes).

**Table 4** Types of final outcomes

|                      | Individual                                                                                          | Firm                                                                 | Social                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Financial</b>     | Employment, earnings, job stability, job satisfaction, career advancement, low income etc.          | Revenues, productivity, etc.                                         | Tax revenues, social transfer costs, health care costs, income inequality, poverty |
| <b>Non-financial</b> | Health status, access to goods and services, social inclusion, life satisfaction and wellbeing etc. | Staff morale, labour-management relations, culture of learning, etc. | Social cohesion, trust, democracy, political stability                             |

As previous studies including the OECD (2007) have pointed out, the categories of outcomes depicted in Table 4 are not independent of each other. Relationships between various final outcomes and between intermediate and final outcomes may be dynamic, mutually reinforcing and non-linear. For example, education that results in improved labour market outcomes can contribute to reducing poverty (a private financial benefit but with social implications). Similarly, the private non-financial return of social engagement can lead to the public non-financial returns of social trust and social cohesion. Moreover, individual level outcomes are often the route through which public outcomes are measured. The main intention is to expand the perspective beyond narrow economic outcomes like labour market earnings and GDP growth, and cover a range of social issues at both the individual and societal levels.

<sup>7</sup> For example, in the educational context, test-taking or note-taking skills, are intermediate outcomes in that they support the educational process and the accumulation of final skills and knowledge that are used in the workplace. Test-taking and note-taking skills are not usually valued in and of themselves in the workplace, although there may be some exceptions.

## Individual financial outcomes

Individual financial outcomes are financial outcomes experienced by the learner or the learner's family. Financial outcomes are typically measured as increased employment, wages, earnings, and income and reduced income assistance benefits. There are a handful of rigorous studies on the individual financial outcomes of foundational learning. Reported outcomes range from modest to insignificant effects on wages, earnings, employment status, and benefit receipt. With respect to higher education, several rigorous studies report that individuals who pursue higher education later in life benefit from earnings premiums roughly similar to those enjoyed by individuals who complete their schooling continuously.

Statistics Canada and ESDC data are better positioned to estimate individual financial outcomes than they are for other type of outcome. Frenette et al. (2014) provides several examples of survey data that can be linked with tax files to estimate individual financial outcomes for various types of adult learning. For example, the authors indicate that the effects of government-sponsored training programs on employment status, earnings and low income could be measured by linking the BNOP or EI status vector with LAD. Table 5 provides an overview of research questions related to individual financial outcomes that can be pursued with Canadian survey and administrative data. The *Practical Guide* provides an extensive discussion on the mechanics of how individual financial returns can be estimated.

**Table 5 Individual financial outcomes – research questions and Canadian data sources**

| Outcome/research question                                                                                                     | Linkage Required                                                                         | Assessment / Gaps                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Returns to very specific types of training delivered in PSE institutions                                                      | PSIS with T1FF                                                                           | Good pre-post-program outcomes, detailed inputs<br>Gap: programs outside of PS institutions, lack of comparison groups |
| Returns to fields of study                                                                                                    | PSIS with tax files (T1, T1FF and LAD)                                                   | Good pre-post-program outcomes, detailed inputs<br>Gap: lack of comparison groups                                      |
| Returns to second language training skills upgrading                                                                          | PSIS with LAD                                                                            | Good pre-post-program outcomes, detailed inputs<br>Gap: programs outside of PS institutions                            |
| Returns to retraining following layoff                                                                                        | PSIS with LWF                                                                            | Good pre-post-program outcomes, detailed inputs<br>Gap: programs outside of PS institutions                            |
| Role of training on the dynamics of employment insurance claims and benefits                                                  | EI-status vector file with employment benefits files (EBSM, AHRDA and TIOW) or the LMAPD | Good pre-post-program outcomes, detailed inputs<br>Gap: lack of comparison groups                                      |
| Do government-sponsored training programs have long lasting effects on outcomes such as employment, earnings, and low-income? | BNOP or EI status vector with LAD                                                        | Good pre-post-program outcomes, detailed inputs<br>Gap: lack of comparison groups                                      |

## Individual non-financial outcomes

Individual non-financial outcomes are outcomes experienced by the learner and/or the learner's family that are not directly expressed in financial terms. Because the literature in this area is relatively sparse, commentators often cite findings from the broader education literature. For example, the adult learning literature offer refers to benefits associated with compulsory schooling (either obtaining an additional year of high school or actually obtaining a high school diploma) and from completion of a post-secondary program.

Cited benefits include intergenerational effects such as children's cognitive development, academic achievement, and health outcomes; avoidance of teenage pregnancy; avoidance of criminal activity; improved health and well-being; and involvement in community activities and civic memberships. There is emerging, and in some cases -- such as health -- well established, evidence to support the claim that the relationship between education and this wide range of non-financial outcomes is causal both in developed and developing nations.

While this literature provides a compelling case for youths to stay in high school, it is unclear if the benefits of high school completion would accrue to individuals who obtain a high school diploma later in life long after their health and social trajectories have set in place. In some cases, it is simply a matter of timing – teenage pregnancy is irrelevant once a woman reaches adulthood and can thus no longer be counted as a mitigated risk. In other cases, it is an empirical question as to whether deeply entrenched patterns of behaviour, which may become increasingly difficult to change over time, are likely to be altered by an adult learning spell later in life. More fundamentally, as numerous commentators such as James Heckman have pointed out, human capital investment is a cumulative process and there is general consensus that starting early is more efficient in fostering social outcomes.

But while the potential of education may be muted if an individual's cognitive, social and emotional skills are not developed early, this does not mean that we should not expect non-financial benefits from adult education and training. It does, however, mean that we should be cautious about simply extrapolating benefits from studies of initial education.

Our *State of Knowledge Review* does identify a handful of studies that suggest participation in adult learning may be associated with increased health and well-being. But these findings should be treated with caution since none of these studies meet our standards for demonstrating causality. Claims about causality could be biased by many problems, such as selection (people who would have higher levels of wellbeing anyway may be more likely to undertake adult learning courses) and reverse causality (an increase in wellbeing may have actually driven people to undertake more adult learning). Further research is needed to more systematically explore the relationship between various types of adult learning and non-financial outcomes.

There has been very little work to date that systematically specifies the range of individual non-financial outcomes that may be associated with adult education and training. Walter McMahon and Moses Oketch (2013) have attempted this task for formal education. They identify what they claim are ten 'comprehensive but non-overlapping' individual non-financial benefits.

While these benefits have not yet been shown to be associated with adult education and training, this list could provide a useful framework for further research. McMahon and Oketch’s review draws on a meta-analysis of 48 studies that largely use existing survey data to estimate the “impact” of education using regression-based techniques. (As usual, whether each of the underlying analyses and the overarching meta-analysis represent causal impacts are judgements that readers must make, but many of the techniques employed would not be classified in the upper tiers of the hierarchy of evidence presented in the Practical Guide.) Overall, their work provides a useful example of how non-financial outcomes (causal or not) can be specified and operationalized using existing survey data. As we show in Table 6, indicators associated with ten outcomes range from self-reports in surveys, to standardized test scores, and to aggregate population data. They are largely drawn from large-scale national or international surveys.

Table 6 provides an overview of outcomes proposed by McMahon and Oketch. In addition we include a number of methodological notes and suggest some potential Canadian data sources that could be used to apply such an approach to adult learning.

**Table 6 Individual non-financial indicators**

| Outcome                            | How this outcome has been operationalized in research on formal education                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Canadian data source                                                                                                                                                                                                            |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Individual’s own subjective health | Relies exclusively on self-reported health using a five point scale (e.g. 1=poor, 2=fair, 3=good, 4=excellent).<br><br>Note: Although we do not go into detail on each indicator, as an example of the measures employed in this approach readers should be aware that this variable does not measure a change in health status associated with increasing education, but differences in health outcomes across individuals with different levels of formal educational attainment. It is also not a sophisticated measure of health status such as the Health Utility Indices used in the medical and health services literatures, some of the most well-known of which have been developed in Canada and are used globally (e.g., <a href="http://fhs.mcmaster.ca/hug/update.htm">http://fhs.mcmaster.ca/hug/update.htm</a> ). | Self-reported health -<br><br>Actual health outcomes can be estimated using Vital Statistics, CCMED & Canadian Cancer Registry                                                                                                  |
| Child’s subjective health          | Self-reported health<br><br>Parent/guardian reported child health.<br><br>Physician-reported child health post physician general examination of child.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Self-reported: National Population Health Survey<br><br>Parent-reported: National Longitudinal Survey of Children and Youth<br><br>Physician-reported: Potential linkage of electronic health files to Census or other surveys. |

| Outcome                                 | How this outcome has been operationalized in research on formal education                                                                                                                                                                                                                                                                                                                                                                                                          | Canadian data source                                                                                                                                                                                                                           |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spouse's own subjective health          | Self-reported health (with control variables for spouse characteristics).                                                                                                                                                                                                                                                                                                                                                                                                          | Survey of Labour and Income Dynamics (major health surveys sample 1 individual per household). Potential linkage to PSIS, LAD.                                                                                                                 |
| Longevity (life span)                   | Deaths per 1000 in population (aggregate variable only)                                                                                                                                                                                                                                                                                                                                                                                                                            | Demography Division, Statistics Canada (CANSIM series available). Aggregate.                                                                                                                                                                   |
| Child's education/cognitive development | Reading and math scores from standardized tests.                                                                                                                                                                                                                                                                                                                                                                                                                                   | Savings for the child's postsecondary education (link CESG with EBSM, AHRDA or TIOW)<br><br>PSE among the children of participants in government sponsored adult learning programs (link CESG and PSIS files with BNOP/EI status vector files) |
| Smaller family size                     | Births-per-woman.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Demography Division, Statistics Canada. Aggregate.                                                                                                                                                                                             |
| Increased happiness                     | Self-reported happiness.<br><br>Self-reported life satisfaction.                                                                                                                                                                                                                                                                                                                                                                                                                   | General Social Survey, Canadian Community Health Survey (definitions and coding vary). Potential linkage to PSIS, LAD.                                                                                                                         |
| Household efficiency:                   | Defined as both household savings and the proportion of household consumption that is spent on durable goods, education and or health care.<br><br>(Michael 1982 used the US Consumption and Expenditure Survey (1) savings rate and (2) alternative savings rate (consumption rate) that excludes goods that are investments or have an element of durability: (1) durable goods, (2) health, and (3) education. This savings rate becomes a measure of "consumption efficiency." | Survey of Household Spending (note change in methodology in 2009 may have an impact). Potential linkage to PSIS, LAD.                                                                                                                          |
| Location and work amenities             | No examples are provided as to how this outcome has been operationalized.                                                                                                                                                                                                                                                                                                                                                                                                          | Workplace and Employee Survey (last run in 2006).                                                                                                                                                                                              |
| Lifelong learning                       | Incidence of enrolment/participation/completion of training/education; share of total education resources devoted to adult learning.                                                                                                                                                                                                                                                                                                                                               | Access and Support to Education Survey. Potential Linkage to PSIS, LAD.                                                                                                                                                                        |

## Firm outcomes

Firm outcomes are outcomes experienced by the firm in which the learner is employed. Financial outcomes for firms are those that directly affect equity and profits and can include such things as changes in revenues or productivity. Non-financial outcomes that a firm may experience do not directly affect a firm's equity or profits, and may include such things as changes in workplace morale, social inclusion, improved manager-worker relations/trust, and a culture of learning. There is a large body of peer-reviewed literature on the firm outcomes of workplace-related learning. Most studies use productivity as the key indicator (earlier studies used wages as proxy, more recent studies use firm level outcomes such as sales revenue). More recent studies also attempt to measure innovation. With respect to non-financial outcomes, outcomes include absenteeism, turnover, health and safety, and employee engagement.

Frenette et al. provide several examples of how firm outcomes could be estimated. For example they suggest that linking the Longitudinal Worker File (LWF) and the T2-LEAP tax files would allow an investigation of the role of adult learning on firm performance as related to profits and sales.

Non-financial firm outcomes are more challenging to measure, and data for these outcomes are not readily available in Statistics Canada or HRSDC data sources.

## Social outcomes

Social outcomes are outcomes that accrue to all of society and are those beyond the private outcomes that accrue to an individual learner, their family or their employer. Examples of social financial indicators include reliance on social assistance, tax contributions, health care costs, the propensity to contribute to the community through, for example, volunteer work, the probability of committing a crime, and a host of similar variables. Studies exploring or measuring social non-financial outcomes may include a focus on voter turnout rates, social cohesion and criminal activity. Accurately estimating social outcomes is critical to determining the optimal level of public investment in adult education and training. As standard economic theory dictates, each individual or family has insufficient incentive to invest in human capital for the purpose of benefiting others, which includes others in future generations. Thus relying only on private self-interest would result in under-investment.

While it may be tempting to estimate the financial social outcomes of adult education and training using labour force data to estimate earnings premiums associated with college diplomas, we note that such an approach does not meet the basic standard for establishing causality. Nor does it account for general equilibrium effects. More fundamentally, even if this approach meets general methodological criteria, it would only have limited applicability to the domain of adult learning since only a relatively small proportion of adult learning activity is associated with higher education (see Rubenson & Elfert, 2013, for a discussion of Canadian participation patterns).

There has been very little work to date that systematically specifies the range of individual non-financial outcomes that may be associated with adult education and training. Walter McMahon and Moses Oketch (2013) have attempted this task for formal education. They identify what they assert are ten ‘comprehensive but non-overlapping’ individual non-financial benefits. While these benefits have not yet been shown to be associated with adult education and training, this list could provide a useful framework for further research. McMahon and Oketch’s review draws on a meta-analysis of 48 studies that largely use existing survey data to estimate the impact of education using regression-based techniques. Thus their work provides a useful example of how non-financial outcomes can be specified and operationalized using existing survey data. As we show in Table 6, indicators associated with ten outcomes range from self-reported surveys, to standardized test scores, to aggregate population data, and are largely drawn from large-scale national or international surveys.

Table 7 provides an overview of social outcomes proposed by McMahon and Oketch. In addition we include a number of methodological notes and suggest some potential Canadian data sources that could be used to apply such an approach to adult learning.

As with individual-level non-financial outcomes, there has been very little work to date that systematically specifies the range of potential societal, non-financial benefits.

Taking a similar approach to the approach they took with individual financial outcomes, Walter McMahon and Moses Oketch (2013) have also created a list of comprehensive non-overlapping social outcomes associated with formal education. As Table 7 indicates, these outcomes include a wide range of potential outcomes including increased democratisation, civil rights, political stability, reduced crime, lower prison, health and welfare costs and new ideas.

As with individual non-financial outcomes, while these benefits have not yet been shown to be associated with adult education and training, this list could that could provide a useful framework for further Canadian research. As with individual outcomes, it is critical to account for the Canadian context. As Riddell (2006) points out, while some impacts of schooling may be universal in nature, others are likely to depend on the social and institutional setting. The outcome of civic participation provides a good example wherein education appears to have a much larger effect on voting behaviour in the U.S. than it does in Canada and the U.K. We might reasonable expect a similar diversity with respect to criminal and health outcomes.

Linkages between PSIS and/or RAIS, as well as BNOP or EI status vector files with health and justice files could inform the investigation of the effects of adult learning on health and therefore public expenditure of healthcare, and on crime outcomes.

**Table 7 External social benefits beyond earnings**

| Outcome                       | McMahon and Oketch's definition                                                                                                                                                                                                                                                                                                                                                                                                                    | Canadian data source                                                                                                                                    |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Democracy, Civic Institutions | Democracy components from Freedom House's annual "Freedom in the World" index.                                                                                                                                                                                                                                                                                                                                                                     | Proprietary survey. Canadian estimates available from Freedom House. Aggregate.                                                                         |
| Human Rights                  | Relevant human rights (13) components from Freedom House's annual "Freedom in the World" index                                                                                                                                                                                                                                                                                                                                                     | Proprietary survey. Canadian estimates available from Freedom House. Aggregate.                                                                         |
| Political Stability           | Measured on a scale of 1-100 by the International Country Risk Guide (Coplin et al., 2010).                                                                                                                                                                                                                                                                                                                                                        | Proprietary survey. Canadian estimates available from The PRS Group on-line. Aggregate.                                                                 |
| Longer Life Expectancy        | Deaths per 1000 in population (aggregate variable only)                                                                                                                                                                                                                                                                                                                                                                                            | Demography Division, Statistics Canada. CANSIM series available. Aggregate.                                                                             |
| Less Inequality               | Due to the variation across jurisdictions in education admissions and financing, as well as in the tax and transfer structure, McMahon argues that the effects of education depend on the jurisdiction under analysis. As such, McMahon omits inequality from measurement. Instead, McMahon argues that notes that (1) restrictive access to higher education increases inequality, and (2) inequality increases where tax systems are regressive. | Survey of Labour and Income Dynamics to 2011, Canadian Income Survey starting 2012 reference year. Aggregate.                                           |
| Poverty Reduction             | Measured based on "Poverty Index" from <i>Education and Development: Measuring the Social Benefits</i> . Book not freely available.                                                                                                                                                                                                                                                                                                                | Various measures from Survey of Labour and Income Dynamics to 2011, Canadian Income Survey starting 2012 reference year. Potential for linkage to PSIS. |

| Outcome                   | McMahon and Oketch's definition                                                                                                                                                                                                                                                                                                                                                | Canadian data source                                                                                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lower Homicide Rates      | Homicide rate.                                                                                                                                                                                                                                                                                                                                                                 | Statistics Canada, Centre for Justice Statistics. Available on CANSIM. Aggregate.                                                                                                                 |
| Less Property Crime       | Crime rate, excluding homicide ("property crime" is deceiving, and McMahon notes the clarification in his Appendix).                                                                                                                                                                                                                                                           | Statistics Canada, Centre for Justice Statistics. By detailed type of crime. Available on CANSIM. Aggregate.                                                                                      |
| Low Welfare, Prison Costs | McMahon does not present a standardized indicator for reduction in public expenditures. Rather, McMahon notes a study by Muennig (2000, UK) that estimates the reduction in criminal justice system costs and public health care costs associated with completing high school, and a study by Levin (2005) that estimates the tax revenue lost due to each dropout in the U.S. | Statistics Canada, Centre for Justice Statistics. Correctional services expenditures, admissions. Available on CANSIM. Social Assistance Expenditures. . Available on CANSIM. Both are aggregates |
| Less Water Pollution      | Sewage in rivers near urban areas.                                                                                                                                                                                                                                                                                                                                             | Environment Canada Freshwater Quality Index available for 340 sampling sites.                                                                                                                     |
| Less Air Pollution        | Mean concentration of sulfur dioxide in air                                                                                                                                                                                                                                                                                                                                    | Environment Canada Air Quality Index available for SO <sub>2</sub> and other pollutants at about 175 sites.                                                                                       |
| Less Deforestation        | % of forest land in jurisdiction                                                                                                                                                                                                                                                                                                                                               | Environment Canada estimates of GHG contribution of deforestation, reforestation and afforestation. Aggregate.                                                                                    |
| Social Capital (trust)    | Results based on average of two survey questions: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (binary) and "Most people are honest" (six point scale).                                                                                                                                       | Similar questions in General Social Survey, Social Identity Cycle. Potential to link to PSIS.                                                                                                     |
| New Ideas, Use of R&D     | McMahon does not provide an operational definition for new ideas; rather, he notes Lucas' (2009) paper that argues that the number of new ideas generated in a society depends on the amount of prior investment in education. McMahon briefly discusses, although does not employ, the incidence or proportion of advanced degrees are a proxy.                               | Statistics Canada patent application data. Available on CANSIM. Aggregate.                                                                                                                        |

\* Source: McMahon, W. & Oketch, M. (2013). Education's effects on individual life chances and on development: An overview. *British Journal of Educational Studies*, 61(1), 79–107.

## Factors

In our framework, factors include the broad range of personal and situational characteristics of learners, and any other contextual factors that may affect the attainment of intermediate and/or final outcomes.

### Individual factors

Individual factors are the range of personal and situational characteristics of learners that may affect the attainment or the magnitude of intermediate and/or final outcomes. Examples of individual factors include learner's age, sex, employment status, life circumstance, and skills. The early evaluation literature on adult training programs routinely cited the *individual characteristics* of participants, such as cognitive skills, as a major explanation for poor outcomes of training programs (see Heckman, 2000, for an authoritative account of this perspective). While the role of individual factors such as general *cognitive ability* has long been associated with training readiness and identified in the literature as a mediating factor in affecting training outcomes, more recent literature has focused specifically on the role of literacy and essential skills (such as prose, numeracy, and document use) on training readiness.

There is now mounting evidence that non-cognitive skills matter as well. For example Heckman, Hsee and Rubinstein (2000) find that the major reason why GED recipients earn less than those with a high school diploma is not that GED recipients have lower cognitive skills but that they lack non-cognitive skills such as discipline, patience or motivation, and as a result they are penalized in the labour market. In a more recent paper, Heckman, Sixtrud, and Urzua (2006) provide direct evidence of the importance of non-cognitive skills in the labour market by modeling labour market outcomes as functions of measures of self-esteem and locus of control. They show that these variables strongly affect employment, work experience, occupation, and wages.

Existing research demonstrates some potentially important barriers to successful training outcomes, which are related to demographic characteristics such as their age, incomes, and area of residence, or often arise from individuals' life course circumstances such as family responsibilities (e.g., HRDC, 2000; Newton, Hurstfield, Miller, Akroyd, & Gifford, 2005). While much of this evidence is revealed through qualitative forms of inquiry, several important variables have been identified including situational factors, such as family commitments (child care, time constraints), distance, as both a physical and cultural barrier making access difficult (transportation, language barriers), and financial barriers (tuition, other non-market costs).

### Enabling and hindering factors

Enabling and hindering factors are the broad array of contextual and environmental factors that may affect the attainment or the magnitude of an intermediate and/or final outcome. Several studies suggest that macroeconomic conditions matter to both training decisions and training outcomes. Several studies suggest that enrolments in training programs may be countercyclical for some populations (Caponi, Kayahan, & Plesca, 2010; Betts & McFarland, 1995) and pro-cyclical for others (King & Sweetman, 2002). In addition, macro-economic factors, and labour market conditions specifically, may also influence persistence in training and outcomes directly. For example individuals may leave a

program before completion if they are offered a decent paying job. Conversely, lack of attractive employment offers may increase the likelihood of persistence by lowering the opportunity costs associated with being out of the labour market. Similarly, if an individual re-enters the labour market during a period of skills shortages, completion of a schooling spell may be associated with higher earnings returns than if he or she re-enters during an economic downturn.

Public policy and institutions also play a role in shaping training effectiveness. In their comprehensive international review of active labour market policies, Kluve et al. (2007) provide strong evidence to demonstrate the importance of taking the policy and institutional environment into account when conducting outcome evaluations. In regards to policy and individual financial outcomes such as employment and earnings, anecdotal evidence from several US jurisdictions suggests that integration of workforce and education policies is crucial. It has been argued that a lack of connection between basic skills programs, more advanced remedial programs and college level skills upgrading programs affects outcomes. With respect to institutions, the international literature on skills regimes suggest that it matters how the state, employers, and trade unions are positioned in the formulation of skill formation policies (Estevez-Abe, Iversen, & Soskice, 2001). In other words, is skills formation policy based on social partnership, state directives or adversarial market relationships?

## **Return on investment**

Finally, the framework includes the return on investment (ROI). The ROI is not a component of the causal chain hypothesized in our framework (hence the absence of an arrow pointing to ROI in the figure), but rather a measurement technique that allows for the calculation of the monetary value of a given learning activity. ROI can accrue to any party, individuals, firms, or governments that contribute to the inputs (financial or non-financial) in the activity.

Any calculation of ROI must ensure that outcomes measured are in fact attributable to the activity in question and should take into account confounding factors that may be influencing outcomes. This issue is covered in detail in the *Practical Guide*.

## Definitions of key terms

**Enabling and hindering factors:** Enabling and hindering factors are the broad array of contextual and environmental factors that may affect the attainment or the magnitude of an intermediate and/or final outcome, such as economic, public policy and institutional conditions.

**Everyday practices:** Changes in everyday practices are a widely cited intermediate outcome associated with adult participation in foundational learning. Everyday practices include a wide range of practices in which individuals engage in their everyday lives and may be measured in terms of changes in the frequency and/or complexity of practices such as literacy practices like reading the newspaper or reading to a child or conducting an internet search.

**Final outcome:** A final outcome is an outcome that is related to the fundamental purpose of implementing, providing, funding, or participating in the learning activity. A final outcome represents a change of state among beneficiaries and it may be the consequence of one or more intermediate outcomes. We distinguish between types of final outcomes depending on to whom they accrue: individuals (and their families), firms, or society/government. Outcomes that accrue to individuals, their families or their employers are considered private outcomes, while outcomes for governments and broader society are considered social outcomes. We also distinguish between outcomes depending on whether they are financial or non-financial.

**Financial outcomes:** Can be directly expressed as dollar figures such as earnings, sales revenues, and GDP.

**Firm outcomes:** Firm outcomes are outcomes experienced by the firm in which the learner is employed. Financial outcomes for firms are those that directly affect equity and profits and can include such things as changes in revenues or productivity. Non-financial outcomes that a firm may experience do not directly affect a firm's equity or profits, and may include such things as changes in workplace morale, social inclusion, improved manager-worker relations/trust, and a culture of learning.

**Human capital:** Human capital is the stock of knowledge and skill that an individual possesses as a result of education, training, and experience. It is the most anticipated outcome of training since training is usually implemented with the intention of enhancing knowledge and skill.

**Individual factors:** Individual factors are the range of personal and situational characteristics of learners that may affect the attainment or the magnitude of intermediate and/or final outcomes. Examples of individual factors include learner's age, sex, employment status, life circumstance, and skills.

**Individual outcomes:** Individual outcomes are outcomes experienced by the learner or the learner's family. The most common individual financial outcomes reported on in the adult learning literature are changes in employment, wages and earnings.

**Inputs:** Financial and non-financial resources employed to provide/participate in the learning activity. Can be interpreted narrowly to include things like total expenditure per learner, class size, class materials, classroom hours and technology or more broadly to include things like degree of professionalization of instructors, instructors' contracts, or delivery infrastructure.

**Intermediate outcomes:** An intermediate outcome is the level of behaviours or characteristics measured following a learning activity that is not of value in itself, but valued because it supports the attainment of final outcomes. Intermediate outcomes of adult learning activities may include human capital, psychosocial capital and social capital, as well as changes in everyday behaviours and workplace practices.

**Learning activity:** The learning activity in which participants engage can be classified into five broad categories – foundational; higher education, workplace-related, labour market advancement, and personal/social.

**Non- financial outcomes:** Are not directly expressed as dollar figures but are indicators of broader wellbeing such as health status and social inclusion. Non-financial outcomes can often be “monetarized” in that they can be assigned a dollar value, although this generally requires sophisticated calculation techniques.

**Outputs:** Outputs can be interpreted narrowly to include the immediate, tangible products and services of learning activities such as contact hours. Analyzing outputs can indicate the extent to which a learning activity was delivered and to which resources were used as intended.

**Psychosocial capital:** Learning activities may also lead to changes in psychosocial capital, which refers to the non-cognitive skills of an individual such as self-esteem, self-efficacy, motivation, and preferences.

**Return on investment:** *The net benefit or net cost of a learning activity relative to the investment, frequently expressed as a ratio or percentage (also known as the internal rate of return). ROI can be calculated from multiple perspectives, such as individuals, firms, or government/society.*

**Social capital:** We define social capital using a social network approach, which emphasizes network characteristics that are measurable and possibly influenced by programs. This definition distinguishes social capital from activities to which it may be related, such as volunteering and civic engagement.

**Social outcomes:** Social outcomes are outcomes that accrue to those beyond the individual learner, their family or their employer. Examples of social financial indicators include reliance on social assistance, tax contributions, and health care costs.

**Workplace practices:** Changes in workplace practices are cited as an intermediate outcome associated with adult participation in foundational learning. Workplace practices include practices such as task efficiency or participation in meetings, or any other practice in which individuals engage on the job or when interacting with colleagues. Such changes can be measured using pre and post programs surveys.

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