Adult Literacy

Overview

This paper outlines our approach to measuring the impact of adult literacy programs in the Canadian context. In particular, we have explored research related to the effectiveness of adult literacy programs and the short- and long-term benefits to individuals and society of improved literacy. Appendix III provides a partial bibliography of the studies that we used to inform our model[1]. Studies were selected based on their relevancy to different aspects of our model and availability of quantitative results. Results were weighted according to things like recency, geography, research design, and overall strength. These studies represent a fraction of the existing research literature on adult literacy programs, a comprehensive review of which would exceed the limits of our resources. We acknowledge this limitation and have done our best to provide as thorough a survey of the research as possible with the studies we have selected.

The Social Return on Investment (SROI) to Adult Literacy Programs

Outcome Categories

Our research finds multiple categories of outcomes connected to adult literacy – see Table I. This is not intended as an exhaustive list of all possible outcomes connected to adult literacy.

Table I – Adult Literacy Outcome Categories

Outcome Category	Description
Income	Greater employment income due to improved literacy.
Social Assistance	Greater access to, or lesser usage of social assistance due to improved literacy[2].
Quality of Life	Improved quality of life due to improved literacy.

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[1] We focus on studies that were chosen as relating specifically to adult literacy, and exclude more general sources of data that inform multiple program models.

[2] Both access to and lesser usage of social assistance involve net positive social benefits in our model. In the case of lesser social assistance usage, this is a benefit to society in the form of lesser public costs related to social assistance payments. In the case of greater access to social assistance, though this involves a cost to society in the form of greater public costs related to social assistance payments, it is also a benefit to clients for whom social assistance represents income. The cost of social assistance to the public and the benefit of income to the client might cancel each other out, except that in the case of direct cash transfers (including public transfers) we consider the 'marginal utility' of additional cash available to low-income individuals, to whom a modest increase in income means more than it would to someone who was more well off. This means that the nominal, monetary value of a direct cash transfer is multiplied by a factor that depends, among other things, on a client's pre-program income and the size of the cash transfer.

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Social Return on Investment Model

We use a Social Return on Investment methodology to measure the impact of charitable activities. The SROI is an estimate of the total dollar value of social benefits that are realized as a result of a charity's programs divided by the charity's costs. Costs include program, administration, and fundraising costs, as well as the cost of goods in kind used in charitable activities and amortization on assets. Data informing the costs side of the SROI equation come from a charity itself and generally are readily accessible. As such, we focus our research and this paper on the data informing the benefits side of the SROI equation.

The total dollar value of social benefits is the sum of the dollar values of often dozens of individual outcomes (or changes) brought about by a charity's programs. The calculation of the dollar value of a particular outcome requires knowledge of several pieces of information. We summarize these in Table II, providing examples in the context of adult literacy.

Table II – Basic Components of Social Benefits Model

Model Component	Description	Example
Number of Clients	The total unique number of clients provided a service or involved in a program (i.e., the total number of clients where each client is counted only once).	The number of clients involved in an adult literacy program (e.g., 100).
Baseline Distribution	The percentage of clients in one of potentially multiple, mutually exclusive groups which differ in some important way, leading to different outcomes.	The percentage of clients whose pre-program literacy proficiency level could be described as poor or very poor (e.g., 67 percent versus 33 percent).
Marginal Success Rate	The percentage of clients who achieve an outcome, net of the percentage of clients who would have achieved the outcome anyway, even without the program.	In the context of social assistance, the percentage of clients who no longer require social assistance, net of the percentage who would no longer have required social assistance anyway (e.g., 0.1 percentage points).
(Annual) Outcome Value	The annual, per person dollar value of a particular change that has happened due to a program or service.	In the context of quality of life, the annual cost per person of poor physical health (e.g., $15,200).
Start and End Years	The number of years that must pass after completion of a program, 1) before the annual outcome value begins to take effect (start year), and 2) after which the annual outcome value is no longer considered (end year).	In the context of income, 1) the average number of years until income improvements are realized, and 2) the start year plus the expected age at retirement minus the average age of clients (e.g., 0 and 30).
(Annual) Drop-Off	The percentage of clients who initially achieve an outcome but lose it over time.	*There is no drop-off value in the context of adult literacy.*
Baseline Attribution	The amount of credit a charity gets for a particular outcome, typically based on its contribution to the total cost of a service or program.	The share of the total cost of an adult literacy program borne by a focal charity (e.g., 100 percent).

In addition to the above, we consider various elements of outcome value depreciation over time. In this context, *attribution decay* accounts for the fact that, over time, other factors besides the initial intervention will contribute to a client's success, such that the original (baseline) attribution percentage should fall incrementally (we have chosen a rate of 10 percent per year). Similarly, *time discounting* is a standard adjustment in the field of economics to value outcomes that are achieved earlier in time more highly than those achieved later in time (we have chosen a discount rate of 3 percent per year). These adjustments apply to all programs.

An Example SROI

The total dollar value of social benefits of an adult literacy program will change based on several factors. We identify in Table III the variables affecting the adult literacy social benefits model.

Table III – Adult Literacy Social Benefits Model Variables

Variable	Description	Example
Number of Clients	The number of clients served.	100
Geography	The province or territory wherein clients are served, or Canada as a whole.	Canada
Gender	The gender of clients (female or male[3]).	Male
Age	The average age of clients.	35
Attribution	The portion of program costs borne by the focal charity.	100 percent
Program Focus	The type of skills at the center of program efforts (literacy or numeracy).	Literacy
Proficiency Level	The portion of clients whose pre-program literacy proficiency level could be described as poor or very poor.	67 and 33 percent
Change in Proficiency Level	The average change in literacy proficiency level.	5 percent
Change in Employment Income, Adequate Literacy	The average change in annual employment income from moving from poor or very poor to adequate literacy.	$10,700 or $13,800
Intensity, Duration of Intervention	The average number of program hours per client.	56 hours

It is beyond the scope of this paper to identify all of the data that go into the impact model for an adult literacy program, as each outcome category involves several specific values for each of the components of our model, described in Table II. As such, a full account of each outcome would overwhelm this paper. Instead, based on the information in Table III, we present final estimates of social benefits of an example adult literacy program. In Appendix II we identify the types of data that inform the various components of our model. Some of these data are from program-specific research (e.g., annual employment income among individuals of different literacy proficiency levels), while others are common to multiple program models (e.g., the annual cost per person of social assistance).

As part of our process, we identify certain 'final' outcomes downstream from the outcome categories identified in earlier sections of this paper. We estimate the total social benefits of a program by summing the values of final outcomes. In cases where the same final outcomes are connected with multiple outcome categories, those with the greatest absolute values are included in the sum. This is to simplify the presentation of our findings and to account for potential double-counting in our model (e.g.,

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[3] Note that the binarization of this variable is for technical reasons, as we do not yet have research specific to non-binary individuals.

overlapping values connected to different education outcomes, in the context of other models). We present in Table IV the total social benefits of our example adult literacy program. In Appendix I, we present our formula for bringing together all of the various components of our approach to valuing a particular final outcome – for example, in the context of adult literacy, improved quality of life related to physical health.

Table IV – Total Social Benefits, Example Adult Literacy Program

Outcome Category	Final Outcome	Total Social Benefits ($)
Income	Cash on Hand, Income (Employment Income)	467,648
	Public Systems, Income Tax	141,569
Social Assistance	Cash on Hand, Income (Public Transfer)	0
	Public Systems, Social Assistance	10,124
Quality of Life	Quality of Life, Physical Health	52,116
		671,458

As can be seen in Table IV, the total social benefits of our example adult literacy program is about $700,000, or $7,000 in short- and long-term benefits per client. The SROI to this example program would then be calculated by dividing the total social benefits by the total cost of the program. Thus, if the program costs $7,000 per client, the SROI would be 1.0. If it costs $1,400, the SROI would be 5.0. That is, $5 of social value created for every $1 of costs.

These estimates are based on a particular set of circumstances, and there is a wide range of possible results for adult literacy programs. As identified in Table III, our adult literacy model involves several variables, differences in any one of which will affect the estimate of total social benefits. Depending on the unique circumstances of and data available from a charity, estimates of the impact of a program could vary considerably. In particular, the onus is on charities to present evidence showing that the effectiveness of their program matches or exceeds what we have found through our research. When charity data are not available, we make conservative assumptions about things like the effectiveness of a program, such that specific estimates of total social benefits may be smaller than those in this paper.

Appendix I – Charity Intelligence Outcome Valuation Formula

As it relates to the total social benefits of a charity program, we calculate the total dollar value of a particular outcome, for all clients who are candidate for it, using the following formula.

$$TV = \frac{\left(ba \times c \times bd \times msr \times ov \times \left((1-do) \times (1-ad)\right)^{-ys} \times \left(\left((1-do) \times (1-ad) \times (1-td)\right)^{ys} - \left((1-do) \times (1-ad) \times (1-td)\right)^{ye}\right)\right)}{1 - \left((1-do) \times (1-ad) \times (1-td)\right)}$$

where:
TV is the total value of a particular outcome, for all clients
ba is baseline attribution
c is the total number of clients candidate for a particular outcome
bd is baseline distribution percentage
msr is the marginal success rate
ov is the annual per person value of an outcome
do is drop-off
ys is year start
ye is year end
ad is attribution decay
td is time discounting

Based on our example adult literacy program, we estimate the total dollar value of improved quality of life related to physical health due to improved literacy. This value is a summation of two estimates, based on clients' pre-program literacy proficiency level. Below, we identify the data informing the components of our model for valuing an outcome, for clients whose pre-program literacy proficiency level is poor. Our intention here is not to explain the derivation of these data, but just to illustrate how the formula for valuing a given outcome works.

Model Component	Value
Number of Clients	100
Baseline Distribution	66.7 percent
Marginal Success Rate	0.5 percent
(Annual) Outcome Value	$15,217
Start Year	0.0
End Year	43.8
Drop-Off	0.0 percent
Baseline Attribution	100.0 percent
Attribution Decay	10.0 percent
Time Discounting	3.0 percent

Inputting these data into the formula, we get:

$$= \frac{\left(100.0\% \times 100 \times 66.7\% \times 0.5\% \times \$15,217 \times \left((1-0.0\%) \times (1-10.0\%)\right)^{-0.0} \times \left(\left((1-0.0\%) \times (1-10.0\%) \times (1-3.0\%)\right)^{0.0} - \left((1-0.0\%) \times (1-10.0\%) \times (1-3.0\%)\right)^{43.8}\right)\right)}{1 - \left((1-0.0\%) \times (1-10.0\%) \times (1-3.0\%)\right)}$$

$$= \$37,399[4]$$

The comparable value for clients whose pre-program literacy proficiency level is very poor is $14,717. Summing these together, we get $52,116 for the total value of improved quality of life related to physical health.

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[4] The difference between this figure and what you would get by the formula is due to rounding in the provided data.

Appendix II – Types of Data Informing Social Benefits Model Components

Income

Number of Clients	• The number of clients participating in an adult literacy program.
Baseline Distribution	• The distribution of clients based on their pre-program literacy proficiency level – poor or very poor.
Marginal Success Rate	*There is no marginal success rate value in the context of income.*
(Annual) Outcome Value	• The annual value of improved employment income from moving from a poor or very poor to an adequate literacy proficiency level. • The change in literacy proficiency level among participants of an adult literacy program. • The duration or intensity of a program.
Start and End Years	• The age at retirement. • The average age of clients.
(Annual) Drop-Off	*There is no drop-off value in the context of adult literacy.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.

Social Assistance

Number of Clients	• The number of clients participating in an adult literacy program.
Baseline Distribution	• The distribution of clients based on their pre-program literacy proficiency level – poor or very poor. • The percentage of individuals who experience one episode of social assistance who experience two or three episodes of social assistance.
Marginal Success Rate	• The annual difference in the rate of social assistance usage between individuals with a poor or very poor versus an adequate literacy proficiency level. • The change in literacy proficiency level among participants of an adult literacy program. • The duration or intensity of a program.
(Annual) Outcome Value	• The annual public cost per person of social assistance. • The annual value per person of social assistance, related to the marginal utility of cash transfers in the form of social assistance payments.
Start and End Years	• The duration of an episode of social assistance usage. • The number of years between a first and second and second and third episode of social assistance usage.
(Annual) Drop-Off	*There is no drop-off value in the context of adult literacy.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.

Quality of Life

Number of Clients	• The number of clients participating in an adult literacy program.
Baseline Distribution	• The distribution of clients based on their pre-program literacy proficiency level – poor or very poor.
Marginal Success Rate	• The annual difference in the percentage of individuals with a poor or very poor versus an adequate literacy proficiency level who are in poor physical health. • The change in literacy proficiency level among participants of an adult literacy program.

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	• The duration or intensity of a program.
(Annual) Outcome Value	• The annual cost per person of poor physical health.
Start and End Years	• Life expectancy in the general population.
	• The average age of clients.
(Annual) Drop-Off	*There is no drop-off value in the context of adult literacy.*
Baseline Attribution	• The charity's costs relative to the total cost of the program.

Appendix III – Bibliography of Studies Used to Inform Adult Literacy Model

Alamprese, J. A. (2008). Developing learners' reading skills in adult basic education programs. In S. Reder & J. Bynner (Eds.), *Tracking adult literacy and numeracy skills: Findings from longitudinal research*.

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