

Social Return on Investment (SROI) Analysis

of Autism CanTech! at NorQuest College

Final Report

September 2023



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Executive Summary

■ Background and Introduction

Social Return on Investment (SROI) is a framework for measuring the value of the activities created by an investment. SROI analysis is comprised of six steps:

1. Defining scope and identifying stakeholders
2. Developing a theory of change and impact map
3. Evidencing outcomes and giving them a value
4. Establishing impact
5. Calculating SROI ratio
6. Reporting and embedding¹

■ Scope of the Analysis

The SROI analysis focused on 223 Autistic youth who participated in the Autism CanTech! (ACT!) program at NorQuest College from April 2021, to January 2023.

The outcomes valued in the analysis were related to training, employment, quality of life.

■ Stakeholder Perspectives Considered for the Analysis

Many stakeholders were identified as affecting, or being affected by, the ACT! program. The analysis valued inputs and outcomes from the perspectives of the primary beneficiaries of the program: program participants (i.e., Autistic youth), local employers, technology providers and funders.

■ Inputs and Outcomes Valued

Program leadership provided the direct cost of program delivery for the study period for April 1, 2021, to January 31, 2023. This included costs related to staffing, participants' work experience stipends, office and class supplies, software and hardware expenses, and advertising. In addition, the direct costs of program delivery include cost of public transit for participants to attend classes.

There were no direct costs to local employers or the technology provider.

Over the study period at NorQuest College, 75% of participants were in ACT! and 25% in IndTech. Hence the cost of ACT! was estimated as 75% of the \$2.44 million provided by program leadership.

The final cost of the program used in analysis was \$1.9 million.

Outcomes valued by program participants were identified:

- increased quality of life, improved well-being, and independence
- attachment to labour market – full-time
- attachment to labour market – part-time/contract
- increased skills acquisition

Outcomes valued by local employers were identified:

- training in diversity and inclusion
- modification of workplace to be more inclusive
- hiring of program completers

Outcomes valued by technology providers were identified:

- increased use of technology
- stated intent to use technology for other disabilities

Outcomes valued by funders were identified:

- reduction in reliance on government benefits by employed program participants
- increase in taxes paid by employed program participants

Like other types of employment and employability related SROI studies, the outcomes were assumed to last for a period of three years.

■ Financial Proxies

A crucial step in SROI analyses involves assigning financial values to outcomes experienced by stakeholders. The outcomes experienced by stakeholders typically have no direct market values, therefore financial proxy indicators are used to estimate the social value of outcomes in monetary terms. To assign financial proxies for the ACT! SROI analysis, several databases as well as existing studies were consulted. Very conservative estimates of social value were selected for the SROI analysis to avoid overvaluing the benefits of the program.

■ Establishing Impact

One of the principles of SROI is to avoid over-claiming the benefits of an initiative. To adhere to this principle, the SROI analysis of ACT! used very conservative estimates. In addition, the analysis made four assumptions:

1. How much of the outcomes would have happened without the program (i.e., deadweight)?
2. What outcomes did the program outcomes displace (i.e., displacement)?
3. How much of the outcomes were contributed by other organizations or people (i.e., attribution)?
4. What proportion of the outcomes would be expected to be lost over time (i.e., drop-off)?

To account for the deadweight of employment outcomes, we used an estimate based on the estimated employment rate of Autistic adults in Canada. We used a 15% deadweight assumption for other employment related outcomes. Attribution and drop-off rate assumptions were informed by other studies as well as responses from focus group participants. A 30% attribution rate was used, and a 40% drop-off rate was used for outcomes lasting more than a year. Some of these assumptions were validated by program participants who confirmed that without ACT!, they would not have experienced many of the outcomes.

■ SROI Ratio

The social value of outcomes from the first year of the ACT! program was estimated to be over \$1.8 million, after accounting for deadweight, displacement, and attribution. Projecting this value over three years, with a drop-off rate of 40% and discount rate of 3.5%, yields a total present social value of approximately \$3.16 million. The **net present social value**, which is the difference between the total present social value and the value of program inputs (i.e., \$1.96 million), was estimated as approximately \$1.2 million. The resulting SROI ratio is 1.61, meaning every \$1 invested in ACT! at NorQuest College generates a social value of \$1.61. This indicates that the social value created through ACT! offsets the value of investment by program stakeholders.

Every \$1 invested in ACT! at NorQuest College generates a social value of \$1.61

■ Conclusions

The SROI analysis has shown that even with the use of very conservative estimates of financial values of program outcomes, the social value created by ACT! offsets the value of investment by program stakeholders. The following analysis limitations must be addressed in future research:

- Using minimum wage to estimate wages earned by program participants could underestimate the monetary value generated
- Excluding families and support persons from the analysis could underestimate the social value created by the program
- Because employment outcomes are valued over a period of more than a year, the assumption that program participants retain employment outcomes for that period could lead to an overestimation of program benefits

Introduction

■ Program Background

Autism CanTech! (ACT!) was a Canadian federally funded pilot program from 2021 to the middle of 2023. ACT! combined supportive programming for participants and employers with career coaching and innovative assistive technology to help Autistic youth gain long-term employment in the digital economy.

This six-month program was comprised of four months of coursework and a two-month paid work experience. Course work encompassed employability skills, digital management skills suited for a variety of fields, and practical assistance in skill assessment, resume building, and interviewing. Participants who completed the program were anticipated to find work in a variety of fields in the digital economy such as education, finance, government, software, and healthcare. Employer partners also gained skills in supervising Autistic youth and creating inclusive workplace practices.

As the program has concluded, it is essential to analyze its value to society (including program participants (i.e., Autistic youth), employer partners, technology providers, and funders) relative to the amount of investment in the program. This social return on investment analysis (SROI) was conducted as part the Future Skills Centre's (FSC) Quality of Work Initiative.

■ Description of SROI

SROI is a framework for measuring the value of the activities created by an investment². It is a much broader methodology than traditional cost benefit analysis and incorporates social and environmental benefits that are usually not sold on a market. SROI helps to tell the story of the value created by an initiative in monetary terms and relates that value to the cost of the initiative³. There are two types of SROI analyses:

1. an evaluative analysis that focuses on outcomes that have already happened, and
2. a forecast SROI that focuses on outcomes that are expected to happen.

SROI is guided by the following principles:

- involving stakeholders
- understanding what changes
- valuing the things that matter
- only including what is material
- not over-claiming
- being transparent
- verifying the result

We ensure that our SROI adhered to the principles outlined above as much as possible.

SROI is comprised of six steps:

- Defining scope and identifying stakeholders
- Developing a theory of change and impact map
- Evidencing outcomes and giving them a value
- Establishing impact
- Calculating SROI ratio
- Reporting and embedding⁴

NorQuest Research Office (2020) and Nicholls et al. (2012) have additional information on the SROI methodology.

The remainder of this report is organized according to the steps followed in conducting the SROI analysis. We then present our conclusions, implications for policy, and limitations of the analysis.

Step 1: Defining Scope and Identifying Stakeholders

■ Program Scope

Autism CanTech was delivered at three sites across Canada: NorQuest College in Alberta, Douglas College in British Columbia, and Humber College in Ontario. **The SROI analysis examined only those participants in ACT! at the Norquest College site from April 2021 to January 2023.** We also excluded students who participated in the program through the IndTech stream.

Based on the available data, a total of 223 Autistic youth participated in the program in the period under consideration at NorQuest College and form the basis of the SROI analysis.

■ Stakeholder Analysis

A key step in conducting SROI analysis once the scope is defined is to identify stakeholders. Stakeholders refer to those who are affected or can affect an initiative. Table 1 shows stakeholders identified for the ACT! program, whether they were included or excluded in the analysis and the rationale for this decision. Following an initial stakeholder analysis from the review of relevant program documentation and similar programs, a complete list of the stakeholders that affect or are affected by the program was identified:

- program participants (Autistic youth)
- families and support persons of participants
- employer partners
- technology service providers
- course instructors
- career coaches
- funders

Following additional discussions with program leadership and taking into consideration data availability, the decision was made to conduct the SROI analysis from the perspectives of the primary beneficiaries of the program: Autistic youth, employer partners, technology service providers, and program funders. The SROI for ACT! could be said to be underestimated as stakeholders who potentially benefitted from the program were excluded from the analysis.

Table 1. ACT! Stakeholders and Rationale for Inclusion or Exclusion from the SROI Analysis

Stakeholder	Excluded or Included	Rationale
Program participants (Autistic youth)	Included	Primary beneficiaries of the program. Data available for analysis
Funders	Included	Provided financial support for the program. Data available through secondary sources for analysis
Families and support persons of participants	Excluded	Potential for double counting of outcomes, particularly those related to well-being. Lack of administrative data for impact measurement
Employer partners	Included	Provided on-the-job training for participants. Direct beneficiaries of training on diversity and inclusion
Course instructors and career coaches	Excluded	Responsible for delivery of course materials. Lack of administrative data for impact measurement
Technology service providers	Included	Direct beneficiaries from sale of technology to support work of Autistic youth

Table 2 presents the stakeholders included in the SROI analysis and the data sources used to obtain information from them. Table 2 presents the data sources included in the SROI analysis for each group of primary program beneficiaries. The SROI analysis involved both primary data collection as well as the use of secondary data (e.g., program surveys, administrative data, government databases).

Table 2. Stakeholders Included in the SROI Analysis and Data Sources

Stakeholder	Data Sources
Program participants (Autistic youth)	- Administrative data - Pre- and post- program surveys - Focus groups - Individual interviews
Funders	Government databases
Employer partners	- Administrative data - Program surveys
Technology service providers	Program surveys

Step 2: Developing Theory of Change and Impact Map

The second step of SROI analysis is to develop a theory of change and impact map. **The theory of change is the underlying theory behind how the program inputs and activities translate to outputs and outcomes.**

We reviewed existing evaluation frameworks for the program. Program inputs included funding, the program team, technology, external stakeholders, existing materials, employers, and Autistic youth.

Program activities included developing and delivering the coursework and work placement components of ACT!. Course work encompassed employability skills, digital management skills suited for a variety of fields, and practical assistance in skill assessment, resume building, and interviewing.

Outputs of the program included the ACT! centre curriculum, iterations of the technology to support Autistic youth at work, and employer training/consultations.

Anticipated long-term outcomes were identified for the ACT! program:

- autistic youth experience improved quality of life, overall well-being, and independence
- model of using Robocoach is easy to replicate by employers
- employers become leaders in hiring Autistic persons and persons with other disabilities
- program expands to other sectors

The ultimate outcome of the program was to address workforce shortages in the digital economy in the regions by enabling the meaningful employment of Autistic persons through an adaptable, scaleable, replicable, expandable, and sustainable program.

An impact map was developed for the ACT! program to demonstrate how the program activities affect various stakeholders. The impact map was validated with the program leadership. Table 3 outlines the impact map developed for the ACT! program. The expectation was that Autistic youth would participate in the program, acquire job-ready skills particularly as they relate to the digital economy, gain meaningful employment, and significantly enhance their quality of life.

For employer participants, it was expected that by participating in the program, they would be more comfortable in employing Autistic youth, modify their workplaces to be more inclusive, and become leaders in hiring Autistic persons and persons with other disabilities.

The expectation for technology providers was that their participation in the program would increase awareness of technology available to support the work of Autistic youth and become a model that can easily be replicated by other employers.

For funders, it was expected that if they invest in ACT!, there would be a reduction in the reliance of employed program participants on government programs for people with barriers to employment and increases in taxes collected from employed program participants.

Table 3. ACT! SROI Impact Map

Stakeholder	Inputs	Activities	Outcomes
Program participants (Autistic youth)	- Time - Costs associated to attend classes	- Attend a course on the fundamentals of data analytics and business intelligence - Attend a course on audio production - Attend a course on digital asset management - Participate in work experience component	- Attachment to the labour market - Increased skills acquisition - Increased well-being and independence
Employers	Time	Provide on-the-job training to participants	- Increased comfort in employing Autistic youth - Modified and inclusive workplace practices - Leaders in hiring Autistic persons and other persons with disabilities
Technology provider	Resources to build technology	Provide technology for use by Autistic youth	- Increased use of technology developed to support work of Autistic youth - Greater integration of technology in work lives beyond ACT! (employees' perspective and employers' perspective)
Funders	Funding \$	Allocate resources to the program	- Reduction in reliance on government financial benefits to unemployed people - Increase in provincial and federal taxes paid by employed program participants

■ Valuing Inputs

We estimated the value of investments in the program by stakeholders. For Autistic youth, the direct costs considered were transportation costs to attend classes. We used the monthly cost of public transit as a financial proxy to estimate transportation costs.

For funders, the budget provided by program leadership was used estimate the costs related to staffing, participant stipend for work experience, office and class supplies, software and hardware expenses, and advertisement. The total cost of these elements over the period of April 2021 to January 2023 was \$2,437,257.12; however, this value also includes participants from the IndTech stream of the CanTech program who were out of the scope of the SROI analysis. Administrative data showed that 75 percent of NorQuest participants were in the ACT! stream; therefore, 75 percent of program delivery costs after adjustments were used as the estimated value of investment by the funder.

We did not estimate separate investment by employer partners and technology providers as those would be captured in the program delivery costs.

The total value of inputs from stakeholders was estimated as \$1,961,742.84. This value excludes any in-kind contributions from other stakeholders.

Step 3: Evidencing Outcomes and Assigning Value

Once the outcomes are identified, the next step involves collecting data to demonstrate evidence that the outcomes have been achieved.

■ Indicators, Data sources, and Evidence of Outcomes

Table 4 shows the indicators and data sources used to demonstrate evidence for each identified outcome. The number of participants experiencing the different outcomes are also shown.

Table 4. Indicators and Data Sources

Stakeholder	Outcomes	Indicators	Data Source	No. of participants experiencing outcome
Program participants (Autistic youth)	Increased well-being and independence	Number of participants who expressed satisfaction with self-management	Participant program exit survey	22
	Attachment to the labour market	Number of program participants employed full-time during and/or after the program	Administrative data	13
		Number of program participants employed part-time (or on contract basis) during and/or after the program	Administrative data	36
	Increased skills acquisition	Number of participants who completed training in the fundamentals of data analytics and business intelligence	Administrative data	121
		Number of participants who completed training in data asset management	Administrative data	43
		Number of participants who completed training in audio post production	Administrative data	25

		Number of participants who indicated developing communication skills from work experience	Participant program exit survey	33
		Number of participants who indicated developing critical thinking skills from work experience	Participant program exit survey	31
		Number of participants who indicated developing collaboration skills from work experience	Participant program exit survey	27
Employers	Increased comfortability in employing Autistic youth	Number of employers who completed training in diversity and inclusion	Administrative data	70
	Modified and inclusive workplace practices	Number of employers who have modified their workplaces to be more inclusive and supportive of Autistic person	Administrative data	18
	Leaders in hiring Autistic persons and other persons with disabilities	Number of employers that hired program completers	Administrative data	28
Technology provider	Increased use of technology developed to support work of Autistic youth	Number of employers who used the technology for Autistic Youth	Employer exit survey	2
		Number of employers interested in using the technology for employees with other disabilities	Employer exit survey	10

Funders	Reduction in reliance on federal and provincial benefits	Provincial and federal payments to unemployed people	Government database	31
	Increase in provincial and federal taxes	Taxes paid by employed program participants	Government database	13

■ Evidencing Outcomes

Table 4 also shows the number of stakeholders that experienced the outcomes identified. Based on available data, over fifty percent of program participants participated and completed the fundamentals of data analytics and business intelligence training. Twenty percent of participants participated and completed the course in data asset management. Participant acquisition of soft skills like communication, critical thinking and collaboration was assessed based on the post program exit survey. Only about a third of participants responded to that survey and hence formed the base for that part of the analysis.

Attachment to the labour market was divided into program participants who were employed full-time and part-time. For part-time, we also included those employed on a contract basis. Based on the available data, forty nine out of the 223 (22 percent) autistic youth included in the analysis were employed in some form after during or participating in the program. Of those employed, thirteen were on a full-time basis working thirty or more hours a week and thirty-six were employed part-time working less than thirty hours a week.

We used administrative data and employer exit survey data to assess the extent of employer outcome achievement. A total of seventy employers received training in diversity and inclusion. About eighteen of those employers reported modifying their workplaces to be more inclusive of Autistic youth. Employers hired twenty participants at NorQuest College sites in the period.

To evidence outcomes achieved by technology providers, we looked at questions on the employer survey to establish use and intent to use a technology that Autistic youth at work. Two employers reported using the technology. Another ten employers reported that they were interested in using the technology for other disabilities.

For evidencing funders' outcomes in terms of tax payment, we used the total number of participants employed full-time. The rationale was that part-time/contract workers would not make enough to be taxed. For reduction in reliance on government supports, we used the number of participants employed full-time and half the number employed part-time. We assumed that part-time employed people would still need about half of the government supports.

■ Duration of Outcomes

As part of the project's valuation of outcomes, it is recommended to determine how long outcomes are expected to last as outcomes are dynamic. Usually, the recommended practice for determining the duration of outcomes is through engagement with the beneficiaries.

Estimates of the duration of program employment outcomes were informed by relevant studies and assumed to last for three years⁵. Outcomes related to employment confidence, increased skills acquisition, and increased knowledge of the importance of essential skills were also assumed to last for three years as these outcomes relate to seeking or maintaining employment.

For the outcomes for funders, both reduction in the reliance of program participants on government benefits and increases in taxes collected were assumed to last for three years as these outcomes are related to the program participants being employed.

■ Financial Proxies

A crucial component of SROI analyses involves the assignment of financial values to outcomes experienced by stakeholders. Once we identified the evidence of the outcomes, the next step in the analysis was to place monetary values of the outcomes achieved. The outcomes achieved through the projects are usually not traded on the market, and hence there are usually no direct market values for them. Hence, financial proxies are used for valuing those outcomes.

In determining the financial proxies for our analyses, we consulted various databases were consulted. This included the SROI Canada financial proxy database as well as the Edmonton SROI proxy database were reviewed. In addition, financial proxies used in other similar studies were reviewed. As this SROI relates to employment and training, a few training websites available in Canada were consulted as well.

Table 5 shows the indicators valued as part of the SROI analysis and the associated financial proxies used.

Table 5. ACT! SROI Indicators and Associated Financial Proxies

Stakeholder	Indicators	Financial Proxy
Program participants (Autistic youth)	Number of participants who report increased quality of life and well-being as a result of taking part in the ACT! Program	Average cost of counselling session (1hr/month) Value: \$2,640 per year
	Number of program participants who transitioned to paid employment – full-time	Average annual salary (based on full-time work (30 hours a week) and minimum wage in Alberta). Value: \$23,400/year.
		Average annual salary (based on part-time work (15 hours a week) and minimum wage in Alberta).

	Number of program participants who transitioned to paid employment – part-time and contract	Value: \$11,700/year.
	Number of participants who completed training	Market cost of data analytics and business intelligence course Value: \$3,465.
	Number of participants who reported developing communication skills from work experience training	- Market cost of data asset management. Value: \$3,585. - Market cost of audio post production Value is \$3,397
	Number of participants who reported developing critical thinking skills from work experience training	Cost of a course on communication skills training Value: \$285
	Number of participants who reported developing collaboration skills from work experience training	Cost of a course on critical thinking skills training Value is \$285
	Number of participants who reported developing collaboration skills from work experience training	Cost of a course on collaboration skills training Value: \$285
	Number of employers who have completed diversity and inclusion training	Market cost of diversity and inclusion training for employers Value: Average of \$3,000 per employee
Employers	Number of employers who have completed diversity and inclusion training	Market cost of diversity and inclusion training for employers Value: Average of \$3,000 per employee
	Number of program completers still employed at training site	Saved cost of hiring and training a new employee Value: \$4,700 per employee
	Number of employers who have	Estimated value of a diverse workforce Value: \$2,800 per employee

	modified their employment practices to accommodate autistic youth	Norte Joven Association (2022)
Technology Provider (Robocoach)	Number of employers using Robocoach as a result of ACT!	Market cost of a technology to support Autistic youth at work Value: \$100,000 (Empauwer)
	Number of employers who intend to use Robocoach for other disabilities	Saved cost from advertisement of the technology to support Autistic youth at work Value: \$30,000
Funders	Number of participants with reduced government benefits as a result of being employed	Savings in government benefits for participants working full-time. 50% of AISH benefit rate for a single adult living in social housing per year Value: \$10,722/ year
	Number of participants paying taxes because of employment	Federal and provincial tax. Tax for a participant working full-time and earning minimum wage Value: \$1,571/year

Step 4: Establishing Impact

To ensure that we adhered to the principle of not over claiming the benefits of an initiative, we used very conservative estimates in our analysis. In addition, best practices for establishing the impact of an initiative were followed. This included accounting for deadweight, displacement, attribution, and drop-off. All concepts are explained below together with the assumptions made for the purpose of the ACT SROI analysis.

■ Deadweight

In simple terms, deadweight refers to the proportion of outcomes that would have happened without the program. Deadweight for outcomes can be assessed by looking at trends in an outcome. For instance, deadweight for outcomes related to employment could be estimated from the change in the employment rates. Where there is no data available to assess trends in an outcome, other researchers have asked stakeholders to consider what would have happened without the program⁶

All Autistic youth who participated in focus groups indicated that without the program and work placements they would be struggling with finding a decent job. The estimated employment rate of Autistic adults in Canada is 14.3%. Hence, we used a deadweight of 15 percent for employment related outcomes. Most employer partners (75 percent) from focus groups indicated that they would consider hiring an autistic worker without the program. Therefore, we used 75 percent deadweight for the outcome around hiring of program completers. For all other employer and technology provider related outcomes we assumed a deadweight of 15 percent, like the employment outcomes.

■ Displacement

The concept of displacement refers to the proportion of an outcome that displaced other outcomes. Displacement assumptions used in a similar employment and skills training SROI analysis was used⁷. Just like that study, we assumed the outcomes achieved for funders (increased in taxes expected and reduction in reliance on government benefits by the employed program participants) could have displacement effects as the jobs accessed by the program participants could be jobs lost to others. A 40 percent displacement rate was assumed for outcomes related to funders.

■ Attribution

In assessing the impact of an initiative, it is also recommended to identify other organizations or people that could have contributed to the outcomes achieved from the project. This assessment of the contribution of other organizations or people to the outcomes achieved is termed attribution. This helps to avoid over-claiming the impacts of an initiative.

We asked focus group participants whether they were participating in other activities. The majority (70 percent) were not in any other activity during the program. The remaining 30 percent indicated that they were involved in university education or volunteering. We therefore used an attribution rate of 30 percent for all outcomes.

■ Drop-Off

Outcomes are not static and can change over time. Program participants employed at one point could lose their jobs at another point. The concept of drop-off in SROI analysis refers to the percentage of outcomes expected to drop-off over time. Usually, drop-off rates are calculated on outcomes that are expected to last for more than a year.

In determining drop-off rates for the SROI outcomes, the assumptions used in a similar Canadian study were adopted⁸. A 40 percent drop-off rate was assumed, and further sensitivity analysis was conducted.

All assumed rates for deadweight, attribution, displacement, and drop-off are presented in Table 6

Table 6. Assumed Rates for Deadweight, Displacement, Attribution, and Drop-Off

Stakeholder	Outcomes	Deadweight	Displacement	Attribution	Drop-off
Program participants (Autistic youth)	Increased well-being and independence	15%	0%	30%	40%
	Attachment to the labour market	15%	0%	30%	40%
	Increased skills acquisition	15%	0%	30%	40%
Employers	Increased comfortability in employing autistic youth	40%	0%	30%	40%
	Modified and inclusive workplace practices	40%	0%	30%	40%
	Leaders in hiring Autistic persons and other persons with disabilities	75%	0%	30%	40%
Technology provider	Increased use of technology developed to support work of Autistic youth	40%	0%	30%	40%

Funders	Reduction in reliance on federal and provincial benefits	15%	40%	30%	40%
	Increase in provincial and federal taxes	15%	40%	30%	40%

Step 5: Calculating SROI

■ Monetary Value of Outcomes

Table 7 shows the monetary value of the outcomes achieved by the two stakeholders included in the analysis for one year after accounting for deadweight, displacement, and attribution. A detailed analysis is presented in Appendix A. The analysis showed the monetary value of outcomes achieved for ACT! at NorQuest College was over \$1.8m.

Table 7. Monetary Value of Program Outcomes

Stakeholder	Outcomes	Value after impact ¹
Program participants (Autistic youth)	Increased well-being and independence	\$34,557
	Attachment to the labour market	\$431,613
	Increased skills acquisition	\$769,805.05
Employers	Increased comfortability in employing autistic youth	\$124,950
	Modified and inclusive workplace practices	\$29,988
	Leaders in hiring Autistic persons and other persons with disabilities	\$23,030.30
Technology provider	Increased use of technology developed to support work of Autistic youth	\$297,500.00
Funders	Reduction in reliance on federal and provincial benefits	\$118,660.37
	Increase in provincial and federal taxes	\$7,291.01
Total		\$1,837,395.04

■ SROI Ratio

The monetary value of the ACT! program outcomes in table 7 was calculated over a three-year period. In some cases, the three years included the year Autistic youth participated in the program, and in

¹ Value after impact refers to the value for the first year of the outcome after accounting for deadweight, displacement and attribution.

some instances the year after participation. To discount future benefits into present values, a social discount rate of 3.5% was used⁹. This is the most common discount rate used in SROI analysis.

Based on the assumptions, the total present value over three years of the outcomes achieved by the program over the period under consideration was estimated as \$3.16 million. Deducting the value of investment of \$1.96m, the net present value was estimated as \$1.2 million, signaling the discounted benefits of ACT! more than offset the amount of investment by stakeholders.

The estimated SROI ratio was 1.61, meaning that every \$1 invested in ACT! at NorQuest College generates about \$1.61 in social value.

Table 8. Total Present Value, Net Present Value, and SROI Ratio

	Year 0	Year 1	Year 2	Year 3
Total value	\$1,360,925.65	\$1,076,725.62	\$646,035.37	\$171,528.98
Present value	\$1,360,925.65	\$1,040,314.60	\$603,080.93	\$154,709.31
Total present value (A)	\$3,159,030.49			
Amount of investment (B)	\$1,066,404.00			
Net present value (A-B)	\$1,197,287.65			
SROI ratio (A/B)	1.61			

Notes: 1. Year 0 represents the year of the activities 2. Total values for years 1 to 3 changes because of the assumed drop-off rate of 40%

■ Sensitivity Analysis

We used several assumptions in our analysis. It is therefore important to conduct sensitivity analysis to assess the robustness of the SROI ratio under different scenarios. Multiple scenarios were considered, and the findings are presented below. All findings from the different scenarios were evaluated relative to the base case scenario.

Scenario 1: Halving the Financial Proxies Used for All Skill Acquisition Outcomes

The monetary value for the outcome of increased skills acquisition was the highest in the calculation. Hence to test the robustness of the analysis, the assumed proxies for indicators related to the outcome were halved. The SROI ratio dropped by 12% to 1.41. It indicates that social value created by investing in ACT! at NorQuest College still offsets the cost of the investment.

Scenario 2: Doubling the Percentage Used for Deadweight

The majority of outcomes were assumed to have a deadweight of 15%, similar to the estimated employment rate of Autistic adults in Canada. To test how robust the resulting SROI ratio was, the assumed deadweight was doubled to 30%. This caused a drop of 25% in the SROI ratio to \$1.52, which still signalled return on investment higher than the cost.

Scenario 3: Reducing the Duration of Employment Outcomes

All employment outcomes were assumed to last for three years. However, one can argue that certain outcomes can be assumed to last for up to year or however long it takes participants to retain employment. Hence, the duration of employment related outcomes was assumed to be 1 year as part of robustness analysis. This resulted in a 16% dip in the SROI ratio to 1.35, but still higher relative the amount of investment by stakeholders.

Scenario 4: Doubling the Incidence of Employment Outcomes

The employment outcomes were assessed at the end of participants' completion of the program. One could argue that more Autistic youth could gain employment in future, especially as more employers become more comfortable in employing them. To incorporate this into the SROI analysis, the incidence of employment outcomes was doubled. This resulted in a 34% jump in the SROI ratio to 2.15.

Scenario 5: Using the Full Program Delivery Cost for the Period

We assumed that 75% of program delivery cost was attributed to ACT! based on the distribution of Autistic youth served. We relaxed that assumption by attributing all the delivery cost to ACT!. The SROI ratio reduced by 24% to 1.23.

The sensitivity analysis showed that the SROI ratio ranges from 1.23 to 2.15. This indicates that even under very stringent sets of assumptions, the social value created through ACT! at NorQuest College more than offsets the value of investment by stakeholders.

All results of sensitivity analysis are presented in Table 9.

Table 9. Sensitivity Analysis

Scenario	Level in base case	Level in alternative case	Adjusted SROI ratio	% change in SROI
Scenario 1: Halving financial proxy for all skill acquisition outcomes	\$11,412 (combined value)	\$5,706	1.41	-12%
Scenario 2: Doubling the percentage used for deadweight	15%	30%	1.24	-23%
Scenario 3: Reducing the duration of employment related outcomes	3 years	1 year	1.35	-16%
Scenario 4: Doubling the incidence of	13 employed full-time 36 employed part-time/contract	26 employed full-time	2.15	+34%

employment outcomes		72 employed part-time/contract		
Scenario 5: Using the full program delivery cost for the period	75% of \$2,437,257.12	100% of \$2,437,257.12	1.23	-24%

Step 6: Reporting and Embedding

The final step of SROI analysis involves reporting the findings of the analysis conducted. For this SROI analysis, the findings will be initially shared with the program advisory committee for verification. Once the results are verified, further sharing of the results will follow, including potentially sharing with stakeholders like program funders.

Conclusions and Limitations

The SROI analysis has shown that even with the use of very conservative estimates, the social value created by ACT! more than offsets the value of investment by stakeholders. There are, however, a number of limitations that need to be considered, and addressed in future research. The limitations are outlined as follows:

- Using minimum wage as the estimate of wages earned by program participants could underestimate the monetary value generated.
- Excluding families and support persons from the analysis could underestimate the social value created.
- Because employment outcomes are valued over a period of more than a year, it is assumed that program participants would retain that outcome for at least that period which could lead to an overestimation of the benefits.
- Using survey data for valuing some outcomes introduces non-response bias and the outcomes may not be representative of all participants.

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