

Research Hypothesis:  
Intervening early with youth with developmental disabilities using a tailored approach that considers each youth's unique strengths and interests will improve future employment outcomes for these youth

# IMPACT

Cohort 1 Report  
January 15, 2021

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THE UNIVERSITY OF BRITISH COLUMBIA

**Canadian Institute for Inclusion and Citizenship**

## Executive Summary

The IMPACT program was developed in 2019 in response to the low labour market participation of individuals with developmental disabilities (DD) in British Columbia (BC). In fact, as of March 31, 2019, only 24.2% of individuals supported by Community Living BC (CLBC) reported some employment earnings, with 82% of these reporting earnings below \$10,000 a year (CLBC, 2019). IMPACT aims to address these low employment outcomes by intervening with transitioning youth between the ages of 15 - 19. Research repeatedly demonstrates that starting early is one of the predictors of later employment outcomes. Given this, IMPACT sets out to determine whether and how intervening early with youth with DD using tailored approaches to employment positively impacts employment outcomes. The hypothesis guiding this research is: *Intervening early with youth with DD using a tailored approach that considers each youth's unique strengths and interests will improve future employment outcomes for these youth.* The IMPACT pilot project was initiated by eight member organizations of the BC Employment Network located in the Lower Mainland and the Southern Vancouver Island of British Columbia. The project involves three cohorts of youth over three years. This report details the findings of the evaluation for Cohort 1.

The IMPACT research uses a multiple-case study approach (Yin, 2003). Each of the eight agencies participating in IMPACT developed and delivered summer youth employment interventions, and a neutral, arms-length evaluation was conducted of the first cohort by researchers from the UBC Canadian Institute for Inclusion and Citizenship. The UBC Behavioural Research Ethics Board granted ethics approval for this research.

Convenience and criterion sampling were used to recruit youth from agencies' partner organizations (e.g., school districts). In the first cohort of 2020, 72 youth with DD participated in the program, and 10 youth participated in a control group. The sample included youth with DD between the ages of 15 and 19 years.

Results regarding the agency intervention and youth engagement were collected through several instruments, including pre- and post-interviews. These interviews included demographic information, an assessment of level of disability (level of support), questions about knowledge of employment, and the completion of the Meticulon Assessment Scale (MAS, 2020). In addition, agency staff were instructed to systematically record their youth's intervention activities in an ongoing developmental diary to document the youths' and employment specialists' activities as they relate to program delivery. During the exit interview, youth were also asked about their experiences in the program. Finally, a short parent survey was conducted to explore parents' views of the IMPACT Program.

Preliminary outcomes reveal an increase in overall paid and unpaid work experience through engagement with IMPACT, as well as increase in some MAS employability domains and self-assessed knowledge about employment. Sixty of the youth participated in unpaid work experience and 26 got paid employment while participating in IMPACT. Findings from Cohort 1 reveal that the intervention of youth with DD using an agency specific tailored approach improves the youth's unique strengths and interests related to employment and skills.

## Table of Contents

Executive Summary .....	1
Introduction .....	3
1. Methods .....	4
1.1 Recruitment and sampling .....	4
1.2 Data collection .....	5
1.3 Data Analysis .....	8
2. Results.....	9
2.1 Demographic Results .....	9
2.2 Supports .....	10
2.3 Employment .....	10
3. Evaluation .....	12
4. Control group .....	15
5. Parent Reflections about IMPACT .....	17
6. Discussion .....	18
7. Assessment .....	22
References .....	23
Appendices .....	26
Appendix A: Tables Corresponding to Results Section 2.....	26
Appendix B: Moving forward.....	41

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Canada



This program is funded by the Government of Canada  
and the Province of British Columbia.

## Introduction

In British Columbia (BC), only 24.2% in BC (CLBC, 2019) and, in Canada, only 22.3% of individuals with developmental disabilities (DD) indicated some kind of employment (Statistics Canada, 2012); and, when employed, individuals with DD receive low wages, work few hours, and their work sometimes takes place in segregated settings (Carter et al., 2012; Grossi et al., 2020; Grigal et al., 2014; Hole et al., 2011). These statistics are striking given the importance of employment for most working-age adults. Work is a major aspiration for people with DD and a key mechanism for enacting social inclusion (Cramm et al., 2009; Flores et al., 2011; Humber 2014; Johoda et al., 2009; Lysaght et al., 2012). Employment is one important means through which individuals with DD can lead full, rich lives as members of their communities (Chiang et al., 2013). As a result, researchers, policy makers, practitioners, family members, and individuals with DD (often referred to as self-advocates in Canada) are calling for improved employment outcomes for individuals with DD. Given the underemployment and unemployment of working age individuals with DD, eight community living organizations of the BC Employment Network located in the lower mainland and South Vancouver Island undertook a project aimed at improving employment outcomes for individuals with DD, and based on research evidence, they focused on youth ages 15 to 19 years old.

In Canada, research on employment and transitioning youth with DD is sparse. In fact, the majority of empirical work comes from researchers in the United States (U.S.), Australia and United Kingdom (Hole et al., 2011). This research repeatedly demonstrates that transition initiatives and planning are “falling short” (Cheak-Zamora et al., 2015; Magnuson, 2013; Sung et al., 2015; Wehman et al., 2014a; Wehman et al., 2014b). That said, there is strong evidence indicating specific domains that improve employment outcomes (e.g., Carter et al., 2012). One key predictor of successful employment outcomes for working-age individuals with DD is early intervention, particularly when youth are transitioning from school to work (Cimera et al., 2014; Cimera et al., 2013; Shattuck et al., 2012; Sung et al., 2015). To date, research on early interventions focused on youth and employment has tended to concentrate on youth specific ‘job tasks’ associated with a particular job (e.g., within retail, restaurant, clerical settings), only a minority of youth intervention studies focused on ‘pre-employment interventions,’ a seeming absence given the importance of early intervention and career planning (Seaman & Cannella-Malone, 2016). Moreover, early vocational support and work experience is another predictor of employment for transitioning youth (Baumann et al., 2013; Cheak-Zamora et al., 2015; Grigal et al., 2014; Simonsen & Neubert, 2012; Sung et al., 2015). In fact, working age youth with DD who were employed upon completion of high school were likely to remain employed and receive competitive wages (Burgess & Cimera, 2014; Cimera et al., 2014; Wehman et al., 2014; Sung et al., 2015). Both transition policy and recommended practice emphasize the necessity of providing youth with disabilities a strong foundation of compelling career development experiences early in their high school years (Carter et al., 2012). Given the importance of early intervention, the IMPACT Project is dedicated to a pre-employment intervention for transitioning youth ages 15 – 19 years.

The principal issue addressed through IMPACT is improving employment related transition planning and supports to youth with DD with the goal to improve employment outcomes of transitioning youth with DD. The hypothesis guiding this work is:

Intervening early with youth with DD using a tailored approach that considers each youth's unique strengths and interests will improve future employment outcomes for these youth.

## 1. Methods

IMPACT uses a mixed-methods, multiple-case study approach over three cohorts (Yin, 2003). A multiple-case study enables exploration of differences within and between cases providing methods to study complex phenomena within their contexts, offering both flexibility and rigor (Baxter & Jack, 2008). That said, for Cohort One we were unable to explore differences between cases for a number of reasons. Given the COVID 19 pandemic, many organizations were required to modify their interventions to align with public health orders and COVID protocols. As such, the developmental diaries used to document the intervention activities were not reflective of their true planned interventions. Moreover, there were some recording errors in the data collection process related specifically to the developmental diaries limiting our ability to conduct a fulsome analysis. In light of these limitations the guiding research question for Cohort One was: *“Is intervening early with youth effective in producing positive employment related outcomes?”*

### 1.1 Recruitment and sampling

Convenience and criterion sampling guided the sampling of participants. Inclusion criteria for eligibility to participate in the project included: 1) youth between the ages of 15 - 19; 2) being a youth with a developmental disability; and, 3) parent/guardian consent if under the age of majority.

All eight agencies approached recruitment through a variety of means. A recruitment flyer was distributed to local organizations positioned to assist with recruitment (e.g., Inclusion BC, STADD Navigators, and CLBC). In addition, seven agencies recruited through their local school districts, and three agencies who provide services to youth utilized their built-in referral sources. Given COVID 19, each agency held virtual information sessions with potential youth and their caregivers, or in-person individual sessions when safe and appropriate protocols were in place. Interested youth were invited to participate, and youth who declined involvement were invited to participate as part of the control group. In total, 72 youth participated in an IMPACT summer program dispersed across the eight organizations. The number of youth per agency was as follows: one agency recruited six youth, one agency recruited eight youth, three agencies recruited nine youth; two agencies recruited ten youth; and one agency recruited 11 youth. Ten youth participated in the control group, completing both the entrance and exit interviews. Of note, while the total sample size (n = 72) was short the original goal of 100 youth for cohort one, given the COVID 19 pandemic, successfully recruiting 72 youth was not an insignificant accomplishment.

## 1.2 Data collection

Upon consenting to participate in the program, a date was set to conduct the entrance interviews prior to commencing the program. Entrance interviews were conducted virtually for the most part, unless an in-person meeting was requested and appropriate COVID protocols were in place. Throughout the intervention, staff kept a developmental diary documenting the activities engaged in throughout the program. Finally, each youth participated in an exit interview. Each youth was given a \$25 gift card four times during their involvement in IMPACT. They received a gift card following the entrance and exit interviews and monthly during their time in the program. Youth in the control group were given a \$25 gift card after both the entrance and exit interviews as well.

Results regarding agency intervention and youth engagement were collected using several instruments, including pre- and post-interviews. The entrance interviews included demographic information (e.g., age, gender, ethnicity, level of disability/support), questions about the youth's knowledge of employment, and the Meticulon Assessment Scale (MAS, 2020). The exit interviews repeated the knowledge of employment questions, the MAS Scale, and additional questions about the youth's experience in the program. In addition, agency staff were instructed to systematically record their youth's intervention activities in an ongoing developmental diary to document the youths' and employment specialists' activities as they relate to program delivery. Finally, a short parent survey was conducted to explore parents' views of the IMPACT Program.

After gaining a more detailed understanding of the interventions, the scales proposed in the original application were changed given that the agencies' interventions were not targeting self-determination or self-efficacy per se, but rather focused specifically on employment readiness. Given this, the Meticulon Assessment Scale based on predictive domains for getting a job and keeping a job was modified to become a Likert Scale. The next section details the measures used in the data collection process.

### **Measures**

The questions posed to the participants in the entrance interview first registered some basic demographic descriptives, such as self-identified gender, age, ethnicity, minority status, and level of education. These questions were followed by scales and multiple response questions to further assess the youth's experiences and the effect that participating in IMPACT had on the participating youth.

#### ***The Arc's Self-determination Scale***

The Arc's Self-determination Scale (Wehmeyer 1995) was developed to assess the level of self-determination of adults with mental and developmental disabilities (5). This scale "was designed to be a tool to enable and empower students [...] by providing a vehicle by which they can [...] self-assess" levels of support needed (Wehmeyer 1995, p. 6). For this sample of DD youth, a subscale of the Arc's Self-determination Scale was used, consisting of 7 questions (see below). These questions were used for the youth to self-determine their level of support needed along a 3-point scale. In response, youth were asked to indicate either "None" (1 point), "A Little" (2 points), or "A Lot" (3 points). The final scale is calculated out of 7 questions with a minimum possible score of 7 and a maximum score of 21.

Arc's Self-determination subscale questions:

1. When it comes to self-care how much support/assistance do you need?
2. When it comes to learning how much support/assistance do you need?
3. When it comes to mobility how much support/assistance do you need?
4. When it comes to self-direction how much support/assistance do you need?
5. When it comes to receptive and expressive language how much support/assistance do you need?
6. When it comes to capacity for independent living how much support/assistance do you need?
7. When it comes to economic self-sufficiency how much support/assistance do you need?

This is an additive scale and the values used were 1 to 3 to come up with a total score. This score is divided per question by 3 to reveal a mean score which represents a general tendency to "None", "A Little", or "A Lot" of support needed in the 7 areas questioned. Internal consistency of this scale was acceptable (Cronbach's alpha=0.70).

### ***Support***

Another closely related general question in connection to the Arc's Self-determination Subscale about support asked youth about their overall need for support during the day. This overall question consists of a 4-point scale ranging from "None" (1 point), "A Little" (2 points), "A Lot" (3 points), to "I need support all the time" (4 points). A mean score was calculated by dividing the response by 4.

### ***Employment***

To assess the influence of employment interventions on the youth to see whether and how a tailored approach will improve future employment outcomes, entrance surveys inquired about their previous work experience in direct response format. Questions asked about previous unpaid, paid, and/or volunteer work experience and if the youth was 'currently employed' at the entrance interview. Youth were subsequently asked about their work experiences and employment outcomes at the exit interview. This is important to gauge change in employment outcomes over time and the effectiveness of the IMPACT in providing employment training and engagement with the youth. Based on the data provided by the agencies related to the individual youth's experience, it is possible to create an overview of the types of experiences youth engaged with and whether or not the experience was paid, contract based, or for instance volunteer-based. Important to note in the results below, is how some of the youth held multiple part time jobs and were very eager and active within the program.

### ***Youth responses to IMPACT program***

Part of the reflection about the IMPACT program is gained from the youth themselves in the exit interview. Youth were asked four questions related to their experience with IMPACT and their overall satisfaction with the interventions.

Apart from the measures described above, youth were asked about their knowledge about employment, and were asked to complete the Meticulon Assessment Scale (MAS) to assess 11 predictive domains of getting a job and keeping it. These questions were posed in both

the entrance and exit interview process. Both entrance and exit results are provided below to allow assessment of change over time for IMPACT Cohort 1.<sup>1</sup>

### ***Knowledge about employment***

Youth were asked fill-in-the-blank questions related to their knowledge about employment. Table 3 displays the 5 questions asked. Question 1, 2, and 3 could be answered with “Nothing”, “A little”, or “A lot” for 1 to 3 points, respectively. For question 4, answer options were “Not excited”, “A little excited”, or “Very excited” followed by question 5 with answer options “Not confident”, “A little confident”, or “Very confident”. All these were assigned from 1 to 3 points. Individual mean scores for these 5 questions are calculated based on the youth’s responses at both entrance and exit interviews to gauge change over time and hopefully an increase in their knowledge about employment after IMPACT interventions.

### ***MAS Inventory***

The entrance and exit Interviews both included a Meticulon Assessment Scale (MAS). The MAS was originally developed by Meticulon Consulting (2020) as an assessment instrument covering multiple predictive domains for getting a job and job retention based on the research evidence. Meticulon Consulting (2020) provides employment support to working age individuals with Autism Spectrum Disorder and this assessment instrument is used to support these individuals with their employment journey. This assessment instrument was modified to be a 5-value Likert-scale. This scale allowed for an assessment of the youth’s capacities and capabilities in connection to employment domains or employability skills. The MAS survey asks questions related to the following employment skills:

- Time Expectations (3 questions);
- Organization (4 questions);
- Authority (3 questions);
- Teamwork (4 questions);
- Perseverance (3 questions);
- Responsibility (3 questions);
- Motivation Level (3 questions);
- Mindfulness (3 questions);
- Self-Awareness (3 questions);
- Communication Skills (3 questions);
- Personal Appearance (1 question).

These questions were given values according to a 5-value Likert-scale ranging from “Strongly Disagree”, “Disagree”, “Neither Agree nor Disagree”, “Agree”, to “Strongly Agree”. Points allotted to these answers range from 1 to 5 respectively.

### ***Control group***

Part of the engagement with the DD youth in IMPACT is corroborated by a comparison with a control group. These youth completed the same above-mentioned questions and scales; however, they do not actually participate in any of the IMPACT interventions, workshops, or employment experiences. The results will briefly relate their respective answers and results

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<sup>1</sup> Follow-up questions will be distributed to Cohort 1 youth in 2021.



in Cohort 1 and the discussion will provide some reflection about the use of the control group and our sample size as of 2020. Of note, we recognize the small number of individuals that took part in the control group and hope that over time through subsequent cohorts the sample size will increase allowing for increasingly valuable comparisons.

### ***Parent/Guardian/Caregiver Survey***

During this first cohort, it was brought to our attention that parents, caregivers, and guardians could provide additional feedback and reflection about IMPACT and their youth's engagement and change in "soft skills" over time. This line of inquiry was not part of the initial outline of the IMPACT surveys, and was designed as a preliminary test or probe in an online survey format of about 10 minutes in which questions were asked related to the youth's experience in the IMPACT program from the secondary perspective of the parent, caregiver, or guardian. The respondents were asked to respond to 5 statements related to their experience with IMPACT and their observations about their youth's engagement with IMPACT. These statements ranged in possible response from "Strongly Disagree" to "Strongly Agree" in a 5-point scale (1-5).

The following statements were posed:

- "I am overall satisfied with our experience with the Summer Employment Service Program"<sup>2</sup>
- "Your youth enjoyed learning and experiencing employment related activities"
- "I feel that the things my youth learned during our time with the program will help them to get a paid job in the future"
- "I feel like the program addressed potential barriers to employment/volunteer experience/work experience through skill and ability training"
- "I feel like the program improved the soft skills of my youth (soft skills refer to social and emotional skill, such as confidence and communication)"

## **1.3 Data Analysis**

The collection of data based on the entrance and exit interviews, intervention diaries, employment outcomes, and parent/guardian/caregiver survey was processed using the SPSS data analysis software. Data and results for this report (see also Appendix A) were generated by running descriptive and frequency statistics within SPSS. We included one Pearson Two-Tailed Bivariate Correlation related to the level of support indicated in the Arc's Self-determination Subscale and Overall Support question on the entrance interview (see Table A11). Youth were asked about their knowledge about employment during the entrance and exit interview and these 5 individual questions were compared over time, reporting their mean scores and p-values with Independent Samples T-Tests as seen in table 4 of this report. Additionally, the scales related to the Meticulon Assessment Survey inventory were repeated over time and compared in Paired Samples T-Test (see Table A28).

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<sup>2</sup> The 'Summer Employment Service Program' refers to IMPACT. Since not all agencies used the same name for the IMPACT program, this is the common name for all agencies to engage with.

## 2. Results<sup>3</sup>

### **Youth Participants**

Seventy-two youth participated in Cohort 1 in 2020 despite COVID-19 limitations. Ten youth were assigned to the control group. They did not participate in any intervention and completed both the entrance and exit interviews. The results from the control group are described in this report after the preliminary analysis of the total of 72 active youth.<sup>4</sup> In total, 72 youth participated in an IMPACT summer intervention.<sup>5</sup>

### 2.1 Demographic Results

#### **Gender**

Of the 72 participating youth, 55 (76.4%) identified as male, and 17 (23.6%) as female (see Table A1).

#### **Age**

The average age of this sample is 17.22, with a minimum age of 15 and a maximum age of 19 at the time of the entrance interview in June 2020 (see Table A2). The majority of the sample was 17 or 18 (63.9%) (see Table A3).

#### **Ethnicity**

Youth were asked about their ethnicity. To the question “Do you identify as Indigenous?”, 5 (7.2%) identified as such, 57 (82.6%) did not identify as Indigenous, and 7 (10.1%) preferred not to answer (see Table A4).<sup>6</sup>

#### **Minority**

In line with ethnicity, youth were also asked if they identify as a visible minority, to which 24 (33.3%) answered “Yes”, 41 (56.9%) answered “No”, and 7 (9.7%) answered “I prefer not to answer” (see Table A5).

#### **Education**

The youth were also asked about their level of education finished at the time of their entrance interview in the Summer of 2020.<sup>7</sup> Results show a logic predominant level of education for their age (17 or 18) in having finished Grade 12 (30 or 42.3%) (see Table A6).

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<sup>3</sup> The appendix provides tables with results generated through SPSS referenced in text as “see Table A#” to refer to corresponding data.

<sup>4</sup> 3 of the 85 youth did not continue the program and did not conduct an Exit interview. This means a total of 72 active participants completed IMPACT 2020.

<sup>5</sup> Missing values are indicated only when they occur.

<sup>6</sup> The sample is 69 here, as 3 participants did not respond to this question and show up as missing.

<sup>7</sup> The sample is 71 here, as 1 participant did not answer the question.

## 2.2 Supports

### ***The Arc’s Self-determination Subscale***

For the 72 youth, this scale reveals a mean score of 1.843 overall which represents a general tendency to “a little” support needed in the 7 areas questioned (see Table A7).<sup>8</sup> Of the 7 areas, support in mobility displays the lowest mean score of 1.125, whereas support in economic self-sufficiency (mean 2.214) and support in learning (mean 2.261) are the two highest mean scores for areas of self-determined support (see Table A8).

### ***Support***

The mean score for this question (2.46) indicates between “A little” and “A lot” of support needed for youth to do the things they do during the day with a standard deviation of 0.79 leaning towards a little support (see Table A9 and Table A10).<sup>9</sup> This overall support question is positively correlated (Pearson Correlation .316) to the previously mentioned Arc’s Self-determination Subscale, which is statistically significant at the 0.05 level (2-tailed) (see Table A11).

## 2.3 Employment

### ***Employment at entrance***

Of the 72 participants, 11 youth (15.3%) were employed at the time of their entrance interview (see Table A12). Of those same 72 participants, 25 (34.7%) indicated to have had previous employment (see Table A13). Put together, 38.9% of the youth (28) were either previously or currently employed in July 2020 (see Table A14). A majority of the youth (83.3%) indicated to have had 1 or more volunteer job experiences in the past (see Table A15). When we put this data together, table 1 provides an overview of the overall work experience of the 72 youth before any IMPACT intervention.

**Table 1: Overall Work Experience of the Youth before the start of IMPACT**

Work Experience	Frequency	Percent
None	9	12.5
Only unpaid experience	34	47.2
Only paid experience	3	4.2
Both unpaid and paid	26	36.1
Total	72	100.0

<sup>8</sup> 7 of 72 are missing. The mean refers to the Arc’s Self-determination Subscale of 65 participants.

<sup>9</sup> Out of 71 participants with 1 missing.

### ***Employment at exit***

Twenty-six of the 72 youth (36.1%) indicated at exit interview that they had found a paid job (see Table A16). Thirty-two out of 72 youth (44.4%) indicated that they participated in work experience or a volunteer position (see Table A17). Overall, 52 youth (72.2%) gained some form of work experience (whether paid or unpaid) during their involvement with IMPACT (see Table A18). Participants were able to hold more than 1 job or to engage with more than 1 work experience through IMPACT, which results in 78 different employment outcomes for these 52 youth (see Table A19). Based on their previous work experience indicated in table 1, table 2 reflects change in the overall work experience of the youth after participation in IMPACT.

**Table 2: Overall Work Experience After IMPACT**

<b>Work Experience</b>	<b>Frequency</b>	<b>Percent</b>
None	4	5.6
Only unpaid experience	27	37.5
Only paid experience	6	8.3
Both unpaid and paid	35	48.6
Total	72	100.0

### ***Types of Experience***

Results from the Agency data, provides the level of engagement of the youth with employment readiness training and exercises, for which 52 or 72.2% of the youth were very engaged (engagement level 76%-100%) (see Table A20). This participation or level of engagement was also measured through the number of interventions either in direct contact or on behalf of the youth (see Table A21). According to the Agency data, 15 youth (20.8) are still employed in some capacity after the end of the program (see Table A22).<sup>10</sup> The distribution of work experiences of the 52 participants (72.2% of the sample) ranges from full-time employment (1), to self-employed (6), and part-time work experience (22). The multiple responses for some are reflected here in Table 3.

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<sup>10</sup> Important to note that full-time employment does not apply to this study sample. Most types of employment whether paid or unpaid are for under 12 hours a week. Most of the youth are combining this with some form of education.

**Table 3: Work Experiences of 52 Participants according to Agency Data**

Type of Employment	Frequency
Full-time	1
Self-employed	6
Contract	10
Work experience <sup>11</sup>	39
Part-time	22
Total	78

### 3. Evaluation

#### ***Youth response to IMPACT***

When asked about their experience with IMPACT, 66 of the youth (91.7%) agreed or strongly agreed that they were satisfied with their experience in the program with a mean score of 3.18 (see Table A23 and Table A24). Forty-four youth (74.6%) enjoyed their employment/work experience/volunteer experience while participating in the program (see Table A25).<sup>12</sup> Fifty-four of the 72 youth participants (75%) indicate that they had learned strategies for acquiring a paid job in the future (see Table A26), and 61 youth (84.7%) indicated that the things they learned during the IMPACT program will help them get a paid job in the future (see Table A27).

#### ***Knowledge about employment***

The table below shows the mean scores to these questions based on the entrance and exit interviews followed by the p-value to determine statistical significance (if any). Table 4 reveals an overall increase in the youth's mean scores related to knowledge about employment, of which the first 4 questions displayed in table 4 are statistically significant increases.

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<sup>11</sup> Work experience here refers to an experience within the IMPACT program, including for instance the warehouse simulation, stocking shelves, or filling gift bags for a couple of hours.

<sup>12</sup> 13 missing. Out of 59 responses, 9 replied ambivalent about their experience with the IMPACT program, which can be explained by the fact that 4 of these 9 did not gain any experience while in the IMPACT program.

**Table 4: Knowledge about Employment at Entrance and Exit Interviews**

Question	Mean Entrance	Mean Exit	p-value
When it comes to employment, I know [blank] about how to start looking for a job. <sup>13</sup>	1.871	2.27	0.000**
When it comes to employment, I know [blank] about the kind of job I want. <sup>14</sup>	2.143	2.37	0.028*
When it comes to employment, I know [blank] about what qualities employers are looking for in a good employee.	2.104	2.53	0.000**
When it comes to getting a job, I feel [blank] about working.	2.201	2.35	0.028*
When it comes to getting a job, I feel [blank]. <sup>15</sup>	2.200	2.31	0.155

\*\* Statistically significant at the 0.01 level.

\* Statistically significant at the 0.05 level.

### **MAS Inventory**

Table 5 engages with the mean scores per domain for the entrance and exit interview as well as the p-value and the potential statistical significance of the change in the mean score. Important to note here is the high mean scores already apparent in the entrance surveys for these youth (see Table A28).

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<sup>13</sup> 2 missing for this question.

<sup>14</sup> 2 missing for this question.

<sup>15</sup> 2 missing for this question.

**Table 5: Paired Samples t-Test MAS Survey Mean Scores Entrance and Exit Interview**

Domain	Mean Entrance	Mean Exit	p-value
Time Expectations	3.9491	3.9722	.785
Organization <sup>16</sup>	3.8426	3.9965	.086
Authority <sup>17</sup>	3.8873	4.1127	.004**
Teamwork <sup>18</sup>	3.8768	4.0387	.024*
Perseverance <sup>19</sup>	3.6761	3.8171	.142
Responsibility	3.8171	3.9676	.080
Motivation Level	4.0741	4.0903	.825
Mindfulness <sup>20</sup>	4.3732	4.3474	.735
Self-Awareness <sup>21</sup>	3.8551	3.9082	.511
Communication Skills <sup>22</sup>	3.7246	3.7536	.741
Personal Appearance <sup>23</sup>	4.0704	4.2535	.091

\*\* Statistically significant at the .01

\* Statistically significant at the .05

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<sup>16</sup> 1 missing.

<sup>17</sup> 1 missing.

<sup>18</sup> 1 missing.

<sup>19</sup> 1 missing.

<sup>20</sup> 1 missing.

<sup>21</sup> 3 missing.

<sup>22</sup> 3 missing.

<sup>23</sup> 1 missing.

## 4. Control group

The sample of youth selected for the first cohort initially consisted of 85 participants.<sup>24</sup> Due to differing circumstances 10 of those participants became our preliminary control group; youth that did not receive any interventions and completed the entrance and exit interview. It is important to note that this is a relatively small control group. Nevertheless, these 10 youth are important to assess here, as more control group participants will join cohort 2 and 3 of this study.

### ***Demographic information***

Of the youth in the control group, 5 identify as male (50%). This is different from our main participant pool, as 76.4% identified as male (see Table A29). In terms of age, the control group is a little younger on average (between 16 and 17) than the 17 or 18 of our participating youth (see Table A30). Our control group does either not identify as Indigenous (9) or prefers not to answer (1) (see Table A31). Three youth (30%) identify as a visible minority, which is comparable to the participating youth (33.3%) (see Table A32). The majority of the control group finished Grade 11 (50%) (see Table A33).<sup>25</sup>

### ***Support***

In engaging with the questions related to the Arc's Self-determination Subscale and the overall need of support during the day, the control group scores relatively lower mean scores.<sup>26</sup> For the Arc's Subscale, the mean is 1.571 (see Table A34 and Table A35). To the question regarding the overall support needed during the day, the control group displays a mean of 1.90 (see Table A36).

### ***Employment***

Five youth (50%) indicated they have had a previous job (see Table A37). Three out of 10 of the youth in the control group (30%) indicated to be employed at the time of the entrance interview (see Table A38). Nine youth, or 90% indicated that they had previous unpaid or volunteer work experience (see Table A39). This indicates the control group has more previous work experience than the participants in IMPACT. Upon exit, 2 youth in the control group (20%) indicated that they had gotten a paid job (see Table A40). However, when looking at their overall employment as indicated at entrance and exit, these 2 youth were already employed. This means the initial distribution of work experience during the entrance interview does not shift upon exit interview (table 6).

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<sup>24</sup> 3 participants dropped out altogether and did not conduct exit interviews disqualifying them from the control group.

<sup>25</sup> 2 answers are missing for this question on education.

<sup>26</sup> These are not statistically significant.



**Table 6: Overall Work Experience Control Group for Entrance and Exit**

Type of Work Experience	Frequency	Percent
Only unpaid work experience	5	50.0
Only paid work experience	1	10.0
Both paid and unpaid work experience	4	40.0
Total	10	100.0

**Knowledge about Employment**

Similar to the participating youth, the youth in the control group were asked about their knowledge about employment. Table 7 relates their respective mean scores for these questions and their p-values.

**Table 7: Knowledge about Employment at Entrance and Exit Interviews Control Group**

Question	Mean Entrance	Mean Exit	p-value
When it comes to employment, I know [blank] about how to start looking for a job. <sup>27</sup>	1.778	2.22	.035*
When it comes to employment, I know [blank] about the kind of job I want. <sup>28</sup>	2.778	2.56	.447
When it comes to employment, I know [blank] about what qualities employers are looking for in a good employee. <sup>29</sup>	2.444	2.44	1.000
When it comes to getting a job, I feel [blank] about working. <sup>30</sup>	2.556	2.33	.169
When it comes to getting a job, I feel [blank]. <sup>31</sup>	2.222	2.44	.347

\*\* Statistically significant at the 0.01 level.

\* Statistically significant at the 0.05 level.

<sup>27</sup> 1 missing for this question.

<sup>28</sup> 1 missing for this question.

<sup>29</sup> 1 missing for this question.

<sup>30</sup> 1 missing for this question.

<sup>31</sup> 1 missing for this question.

### **MAS Survey**

The control group likewise conducted the Meticulon Assessment Survey (MAS) at both entrance and exit interviews. Their results are visible in table 8 (see also Table A41). The ostensible differences over time for each variable are not statistically significant for any given variable.

**Table 8: MAS Scale Mean Scores Entrance and Exit Interview Control Group**

<b>Domain</b>	<b>Mean Entrance</b>	<b>Mean Exit</b>	<b>p-value</b>
Time Expectations	3.6667	3.7000	.859
Organization	3.8250	3.8750	.726
Authority	4.0000	3.8333	.213
Teamwork	4.0500	3.8250	.378
Perseverance <sup>32</sup>	3.9167	3.9167	1.000
Responsibility	3.9000	3.8667	.853
Motivation Level	4.1333	4.0333	.647
Mindfulness	4.1000	4.1667	.794
Self-Awareness	3.7000	3.9333	.298
Communication Skills	3.7333	3.6667	.591
Personal Appearance	4.0000	4.1000	.591

\*\* Statistically significant at the .01

\* Statistically significant at the .05

## **5. Parent Reflections about IMPACT**

### **Parent/Guardian/Caregiver Survey**

During this first cohort, 31 parents/guardians/caregivers replied. Of the 31 respondents, 28 (90.3%) identified as a parent. The other three (each representing 3.2%) are a guardian, a relative, and a caregiver (see Table A42). The responses to 5 statements related to their experience with IMPACT and their observations about their youth's engagement with IMPACT show an overall positive response to these statements. Mean scores per question (between 1 and 5) gravitate to 4 points or "Agree" (see Table A43 to Table A47). To the statement, "As a parent/guardian/caregiver, I noticed changes in my youth's behaviour, attitude, and actions during the course of the Summer Employment program", 22 (80%) responded with "Yes".<sup>33</sup>

<sup>32</sup> 2 missing for this question.

<sup>33</sup> 1 missing.

## 6. Discussion

### **Objectives**

As indicated in this report, the purpose and objective of this study is to determine whether and how intervening early with youth with DD using a tailored approach will improve future employment outcomes. The results presented here for Cohort 1 provided some preliminary findings regarding this objective. Based on the questions related to knowledge about employment and the Meticulon Assessment Scale, youth appeared to benefit and enjoy their participation in the IMPACT Summer Program. We are cautiously optimistic that the engagement and interventions will indeed increase the future job market engagement for these youth. The pre- and post-interviews conducted with youth in combination with the agency staff's recorded intervention activities through the developmental diaries reveal an overall enthusiasm among the youth to engage with employment and job readiness training.

Unfortunately, many youth with DD often do not receive employment related transition planning and supports (Butcher & Wilton, 2008; Lysaght, Ouellette-Kuntz, & Lin, 2012; Simonsen & Neubert, 2012). IMPACT addresses this unmet need by focusing on tailored employment supports to youth, and findings from the research will inform best practices for supporting transitioning youth with DD from school to work. Few interventions focus solely on employment or post-secondary aspirations for transitioning youth with DD. Rather, much of transition planning for youth with DD is focused on leisure or recreational activity without the inclusion of employment related planning and preparation that their peers without disabilities explore. Informed by the predictors of improved employment outcomes for youth with DD (Simonsen & Neubert, 2012; Carter et al., 2010; Carter et al., 2012), IMPACT provides a consistent conduit to youth with DD to explore different kinds of employment and to engage in activities (e.g., community involvement) that are demonstrated predictors of future labour market participation (e.g., Carter et al., 2010).

### **Demographic descriptives**

Based on the results, the sample for Cohort 1 is predominantly male, around 17 years of age and completed grade 12. While it is important to note that males are diagnosed with DD more frequently than females, research that looks at gender, employment, and DD indicates that it comes to sex/gender, males are hired more frequently, work more hours, and are paid more (e.g., Kaya et al., 2018; Sung et al., 2015). Given this, a sex/gender-based analysis is an important part of this research moving forward.

### **Arc's Self-Determination Subscale for Support**

The subscale used for this study actively engages with domains of support and the self-determined needs in those domains as indicated by the youth. Overall, the indicated mean score of 1.843 indicates most youth need a little support in these domains. Nevertheless, in the assessment of the survey tool itself, feedback from the agencies indicates the perceived gap between a little and a lot of support did not allow for youth to respond 'average' or in between a little and a lot. Despite this feedback, the measure itself correlated significantly with the follow-up question related to the overall support needed during the day as indicated by the youth. Wehmeyer (personal communication June 2019) proposes a measure of level of support as a means to determine the level of disability that is more strengths-based. The Arc's Self-Determination Subscale for Level of Support has been validated. These measures

will be useful in future cohorts as sample size permits to assess the level of support needed and analyze the potential correlation to the IMPACT interventions and employment experiences of the youth.

### ***Employment outcomes***

The overall employment outcomes reveal a strong engagement from roughly 52 youth in either paid, unpaid, and/or work experience opportunities. What is perhaps not gained from the data, is the type of employment most youth engage with. The demographic sample of the DD youth does not allow for a direct application of full-time job parameters, or even paid part time notions of employment. More often than not, these youth engage in part-time work only a few days a week and with short shifts (2-3 hours); these employment experiences are frequently in combination with education, volunteer work, and other community-based activities. Their work experiences whether paid or not, often engaged with service industry, paper routes, warehouse packaging, cash registries, and outside labour and maintenance. When describing their previous work experience and volunteer jobs, reports from the youth highlight the essential community ties and connections in gaining employment experience through family and/or friends, school districts, and community-based social services and church. Agency engagement was instructive in expanding the horizon of employment possibilities for youth through for instance warehouse simulation training and building a resume for jobs and opportunities outside of their unpaid work experience within their smaller community environment.

### ***Knowledge about employment***

The questions engaging with the youth's self-assessed knowledge about employment as measured before and after IMPACT interventions, show statistically significant increase in the mean score of 4 out of 5 questions in the main participant group. The most significant increase is visible in responses to the first and third questions; "When it comes to employment, I know [blank] about how to start looking for a job," and "When it comes to employment, I know [blank] about what qualities employers are looking for in a good employee". This reveals the focus of the agencies and the interventions into how to actually go about looking for a job, how to dress, how to engage with authority. This is also supported by the MAS results where there was a statistically significant increase in the employability domains of authority and teamwork.

### ***MAS***

The Meticulon Assessment Scale focuses on the self-reported strength or level of agreement with statements pertaining to 11 specific domains that are predictors of getting a job and keeping a job. One of the first things to notice about the results was the already high mean scores at entrance interviews across the 11 domains in which most statements score around a 4 ("Agree"). Most domains also reveal a self-assessed increase in score post-intervention. As the results show, the statistically significant increase in mean score is discernible in the domains of authority and teamwork. This result is according to the expectations of the slightly altered IMPACT program given COVID restrictions and the adoption of different engagement methods during agency interventions with the youth. There was an indirect focus on teamwork and authority, as also visible in the agency diaries of the youth's engagement. Most engagement, due to COVID restrictions, occurred between the agency worker and the individual youth or group of youth linked to that specific agency through virtual meetings. At times, when restrictions allowed for it, some group and team work

exercises took place. For instance, some agencies provided a warehouse simulation, gardening, or gift bag wrapping exercises to their youth. This format of IMPACT 2020 is then visible in the statistically significant increase in the domains of teamwork and authority.

### ***Control Group***

Even though this control group is too small to look at the correlation between their work experience, the Arc's subscale, and the MAS domains, this will be of interest after the inclusion of control groups from Cohort 2 and 3, when we anticipate a larger control group sample to potentially look at the correlations between previous unpaid and paid work experience, the Arc's subscale of self-indicated need for support, and the MAS domains of employability. This can be compared with the participant group who receive intervention through IMPACT. Nevertheless, the small control group for this cohort hints at how IMPACT intervention created a change in work and employment experience in the positive sense for the engaged participant group not necessarily experienced by the ten youth in the control group. Future follow-up surveys related to employment will assess this further.

### ***Parent/Guardian/Caregiver Survey***

In this cohort, the Parent/Guardian/Caregiver survey was distributed as a pilot. Results reveal a positive response from almost all of the respondents. We noticed the importance of the assessment of the IMPACT program through the parent/guardian/caregiver during the exit interview process and the agency reporting on the impact of the interventions on youth outside of the specific employment domains. Soft skills and responsibility in other areas of life seem to be impacted by the IMPACT program as well. Some parent/guardian/caregiver responses indicate this very well. In response to the open question about the noticeable changes in their youth due to the IMPACT program, responses include:<sup>34</sup>

- Became enthusiastic about seeking employment. Gained confidence in the process of finding and applying for a job. Enjoyed the experience of interacting with mentors about job seeking;
- [Youth] is more open to talking to others and joining group conversations and really thinks about the questions asked;
- [Youth] looked proud and [...] has confidence in working in the future;
- I noticed, [the youth] felt so proud of [themselves] and mature during the summer course. [Youth] becomes now more committed and serious about [...] current volunteering. [Youth] understands now that when it comes to a meeting or a workshop [to] be there on time, listen and respect. [Youth] understands as well that if [they] start a task [they] should complete it. [Youth] knows now at any job [to] follow the rules and the instructions that belong to that work place;
- More confidence and also taking responsibility, becoming more independent;
- My [youth] usually doesn't like to communicate with others nor share [their] thoughts or opinions. Towards the end of the program [they] were more willing to participate and communicate with the other participants as [they] became more comfortable with them. I believe that being forced to use an online platform due to Covid19 had the unexpected positive effect to create a more comfortable environment for people like my [youth] who get anxious around other people;

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<sup>34</sup> For the sake of anonymity, pronouns and names have been replaced in these responses.

- They enjoyed the social activities and began to think more about what kind of work they might enjoy;
- They have an uplifted attitude. This program gave them different activities to look forward to. [They were] also very excited about the support for job opportunities and the potential for a paid opportunity in the near future.

These responses reveal the use of the IMPACT program beyond the employment objectives in the everyday lives of the youth.

### ***Youth responses to IMPACT program***

These results similar to the parent/guardian/caregiver responses reflect the enthusiasm and engagement of the youth within their respective IMPACT programs. Apart from the statistical results presented above, a more qualitative response from the participants reveals the importance of the interventions and the gained trust of the individual youth in being capable and able to function in an employment environment. Open answer responses to what the youth learned, include (but are not limited to):

- Appropriate things to say in a business environment; Jobs can have varying levels of difficulty;
- Building confidence; Workplace expectations;
- Communication skills, conflict solving and more;
- Cover letters, workplace attire, interview process and how to write a resume;
- Finding a job is difficult at the start but it gets easier;
- How to be more independent and on my own. And also being able to find things on my own;
- How to write a cover letter/ resume. Applying for a job. Communication skills. What to say in an interview. Social skills;
- I learned how to budget money, how to dress and act appropriately and how to do interviews;
- Importance of team building, sharing ideas, asking for help, being safe, being appropriate and being nice to people;
- Learning about pre-employment skills;
- Learning about the community and making friends;
- Money-budgeting activity. How to be a good employee;
- Not getting overwhelmed when working on a task; Working efficiently; Strong quality of work; Communication; Banking & e-transfer;
- Responsibility and making new friends;
- Speaking clearly; Paying attention when people are speaking; Using a clear voice;
- Time management; Packing boxes; Scanning barcodes; Stocking; Putting back items on shelves;
- What's expected out of a good employee; Useful traits and qualities; Asking for help in the workplace and expressing myself.

Logically these types of responses are found among the engaged to very engaged youth and high Agency intervention respectively.

## 7. Assessment

### ***Limitations***

As mentioned throughout this report, most of the limitations of IMPACT for 2020 are COVID-19 related. Agencies and the individual mentors had to adapt and move most of their program to either an online or COVID regulated format. In some of the feedback from the agencies, it became clear that some of the youth had a harder time engaging with the program either in its adapted format, or through the mental strain and the fear that COVID-19 brought along for everyone. This logically affected the results and the sample of Cohort 1. Where it was initially projected to service and support about 100 youth through their school districts and the agencies, we were able to deliver IMPACT Programs to 72 youth in its adapted format and 10 youth participated as part of a control group. Regardless of these limitations, results have proven an overall positive outcome for most of the youth actively engaged. Unexpected victories include the entrepreneurship of some youth in setting up their own landscaping endeavours and youth actually benefiting more from the online environment.

### ***Moving forward***

We hope and anticipate continuing IMPACT in 2021 and 2022 in a less COVID adapted form as is possible given public health guidelines/orders. The relevance for research and long-term projections of IMPACT are important in its increased ability to compare between cohorts over time. Future analyses of sex and gender, the control group, the parent/guardian/caregiver surveys, agency assessments and reporting, interviews with employers, follow-up interviews with youth related to employment are detailed in Appendix B.

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# Appendices

## Appendix A: Tables Corresponding to Results Section 2

### 1. Demographic descriptives (n=72)

Tables A1 to A6 display the demographic statistics for the 72 participating youth (n=72)

	Frequency	Percent
Male	55	76.4
Female	17	23.6
Total	72	100.0

Mean	17.22
Minimum	15
Maximum	19

	Frequency	Percent
15	7	9.7
16	11	15.3
17	21	29.2
18	25	34.7
19	8	11.1
Total	72	100.0

<i>Do you identify as Indigenous?</i>	Frequency	Valid Percent
Yes	5	7.2
No	57	82.6
I prefer not to answer	7	10.1
<b>Total</b>	69*	100.0

\*3 missing

<i>Do you identify as a visible minority?</i>	Frequency	Percent
Yes	24	33.3
No	41	56.9
I prefer not to answer	7	9.7
Total	72	100.0

<i>Highest level of education</i>	Frequency	Valid Percent
Grade 10	14	19.7
Grade 11	17	23.9
Grade 12	30	42.3
Grade 13	6	8.5
Post-secondary	4	5.6
<b>Total</b>	71*	100

\* 1 missing

## 2. Supports

Tables A7 to A11 refer to the data in response to questions about self-determined level of support needed (Arc's Self-determination Subscale and Overall Support). Table A11 looks at the statistically significant correlation between the Arc's Subscale and the Overall Support.

<i>ARC 7-item scale</i>	
Valid	65
Missing	7
Mean	1.843
Std. Deviation	.3931

	N	Mean	Std. Deviation
<i>When it comes to self-care how much support/assistance do you need?</i>	72	1.549	.5639
<i>When it comes to learning how much support/assistance do you need?</i>	71	2.261	.5533
<i>When it comes to mobility how much support/assistance do you need?</i>	72	1.125	.4090
<i>When it comes to self-direction how much support/assistance do you need?</i>	71	1.908	.6830
<i>When it comes to receptive and expressive language how much support/assistance do you need?</i>	69	1.833	.7001
<i>When it comes to capacity for independent living how much support/assistance do you need?</i>	69	2.087	.7810
<i>When it comes to economic self-sufficiency how much support/assistance do you need?</i>	70	2.214	.7966

<b>Table A9: Overall Support</b>	
<i>What level of support do you need to do the things you do?</i>	
Mean	2.46
Std. Deviation	.790

<b>Table A10: Support distribution</b>		
	Frequency	Valid Percent
None	3	4.2
A little	42	59.2
A lot	16	22.5
I need support all the time	10	14.1
<b>Total</b>	<b>71*</b>	<b>100</b>

\* 1 missing

<b>Table A11: Correlation ARC and Overall Support</b>		
		<i>What overall level of support do you need?</i>
ARC 7-Item Scale	Pearson Correlation	.316*
	Sig. (2-tailed)	.010
	N	65
*. Correlation is significant at the 0.05 level (2-tailed).		

### 3. Employment

Tables A12 to A18 relate the paid, unpaid, and volunteer work experience of the 72 youth. Tables A12 to A15 refer to work experience and employment before IMPACT intervention or during entrance interview. Tables A16 to A18 refer to the gained work experience after IMPACT intervention at exit interview.

<b>Table A12: Employed at Entrance</b>		
	Frequency	Percent
Yes	11	15.3
No	61	84.7
<b>Total</b>	<b>72</b>	<b>100.0</b>

**Table A13: Previously Employed**

	Frequency	Percent
Yes	25	34.7
No	47	65.3
Total	72	100.0

**Table A14: Overall Paid Work Experience Entry** (either previously or currently employed)

	Frequency	Percent
Yes	28	38.9
No	44	61.1
Total	72	100.0

**Table A15: Unpaid Work Experience/Volunteer Job**

	Frequency	Percent
Yes	60	83.3
No	12	16.7
Total	72	100.0

**Table A16: Got a paid job**

	Frequency	Percent
Yes	26	36.1
No	46	63.9
Total	72	100.0

**Table A17: Participated in a work experience or volunteer position**

	Frequency	Percent
Yes	32	44.4
No	40	55.6
Total	72	100.0

**Table A18: Youth gained Overall Work Experience**

	Frequency	Percent
Yes	52	72.2
No	20	27.8
Total	72	100.0

#### 4. Agency Data

Tables A19 to A22 display the specific data gleaned from agency intervention and employment diaries. They specify the type of employment in a multiple response set (Table A19), level of engagement with IMPACT activities and interventions (Table A20 and A21), and a follow question about employment (Table A22).

<i>Type of Employment</i>	Frequency
Full-time	1
Self-employed	6
Contract	10
Work experience	39
Part-time	22
Total	78

	Frequency	Percent
Minimally engaged 0% - 25%	5	6.9
Somewhat engaged 26% - 50%	6	8.3
Engaged 51% - 75%	9	12.5
Very engaged 76% - 100%	52	72.2
Total	72	100.0

<i>How many interventions did this participant have?</i>	
Mean	36.32
Std. Deviation	15.446
Range	73
Minimum	11
Maximum	84

<i>If paid work experience ; are you still employed?</i>	Frequency	Valid Percent
Yes	15	39.5
No	23	60.5
<b>Total</b>	<b>38*</b>	<b>100.0</b>

\*34 missing

## 5. Evaluation

Tables A23 to A27 correspond to evaluation questions asked of the participating youth in relation to their IMPACT experiences.

	N	Mean
I am satisfied with my experience in the IMPACT Program	72	3.18
I enjoyed my employment/volunteer experience/work experience while participating in the IMPACT Program	59*	2.76
I learned strategies about how to get a paid job during the IMPACT Program	72	2.81
I feel that the things I learned during my time in the IMPACT Program will help me paid get a job in the future	72	2.96

\*13 missing (question is not applicable to youth)

	Frequency	Percent
Neutral/I don't know	4	5.6
Strongly Disagree	1	1.4
Disagree	1	1.4
Agree	38	52.8
Strongly Agree	28	38.9
<b>Total</b>	<b>72</b>	<b>100.0</b>



**Table A25:** *I enjoyed my employment/volunteer experience/work experience while participating in the IMPACT Program*

	Frequency	Valid Percent
Neutral/I don't know	9	15.3
Strongly Disagree	1	1.7
Disagree	5	8.5
Agree	24	40.7
Strongly Agree	20	33.9
Total	59*	100.0

\*13 missing

**Table A26:** *I learned strategies about how to get a paid job during the IMPACT Program*

	Frequency	Percent
Neutral/I don't know	10	13.9
Strongly Disagree	1	1.4
Disagree	7	9.7
Agree	29	40.3
Strongly Agree	25	34.7
Total	72	100.0

**Table A27:** *I feel that the things I learned during my time in the IMPACT Program will help me paid get a job in the future*

	Frequency	Percent
Neutral/I don't know	8	11.1
Strongly Disagree	1	1.4
Disagree	2	2.8
Agree	36	50.0
Strongly Agree	25	34.7
Total	72	100.0

## 6. Meticulon Assessment Survey (MAS) Inventory

Table A28 displays the Paired Samples T-Test for the MAS inventory per employment skill domain at entrance and exit for the 72-participating youth. The eleven domains (Time expectations, Organization skills, Authority, etc.) are paired according to their entrance and exit scores for each participant.

**Table A28: Paired Samples T-Test Meticulon Assessment Survey (n=72)**

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Time Expectations Exit - Time Expectations Entry	.02315	.71771	.08458	-.14551	.19180	.274	71	.785
Organization Exit - Organization Entry	.15387	.74354	.08824	-.02212	.32987	1.744	70	.086
Authority Exit - Authority Entry	.22535	.64186	.07617	.07343	.37728	2.958	70	.004
Teamwork Exit - Teamwork Entry	.16197	.59176	.07023	.02191	.30204	2.306	70	.024
Perseverance Exit - Perseverance Entry	.14085	.79814	.09472	-.04807	.32976	1.487	70	.142
Responsibility Exit - Responsibility Entry	.15046	.71817	.08464	-.01830	.31923	1.778	71	.080
Motivation Level Exit - Motivation Level Entry	.01620	.62057	.07313	-.12962	.16203	.222	71	.825
Mindfulness Exit - Mindfulness Entry	-.02582	.63972	.07592	-.17724	.12560	-.340	70	.735
Self-Awareness Exit - Self-Awareness Entry	.05314	.66819	.08044	-.10738	.21366	.661	68	.511
Communication Skills Exit - Communication Skills Entry	.02899	.72477	.08725	-.14512	.20309	.332	68	.741
Appearance Exit - Personal Appearance	.18310	.89936	.10673	-.02978	.39597	1.715	70	.091

## 7. Control group

Demographic data for the 10-control group youth (n=10) is made visible in Tables A29 to A36. Tables A37 to A40 relate their employment details which remained unchanged over the course of the IMPACT program. Table A41 provides the Paired Samples T-Test for the MAS inventory similar to Table A28 for the participating youth (n=72).

		Frequency	Percent
Control Group	Male	5	50.0
	Female	5	50.0
	<b>Total</b>	10	100.0
Participants	Male	55	76.4
	Female	17	23.6
	<b>Total</b>	72	100.0

		Frequency	Percent
Control Group	16	4	40.0
	17	3	30.0
	18	2	20.0
	19	1	10.0
	<b>Total</b>	10	100.0
Participants	15	7	9.7
	16	11	15.3
	17	21	29.2
	18	25	34.7
	19	8	11.1
	<b>Total</b>	72	100.0

<i>Do you identify as Indigenous?</i>		Frequency	Valid Percent
Control Group	No	9	90.0
	I prefer not to answer	1	10.0
	<b>Total</b>	10	100.0
Participants	Yes	5	7.2
	No	57	82.6
	I prefer not to answer	7	10.1
	<b>Total</b>	69*	100.0

\* 3 missing

<i>Do you identify as a visible minority?</i>		Frequency	Percent
Control Group	Yes	3	30.0
	No	7	70.0
	<b>Total</b>	10	100.0
Participants	Yes	24	33.3
	No	41	56.9
	I prefer not to answer	7	9.7
	<b>Total</b>	72	100.0

<i>Highest level of completed education</i>		Frequency	Valid Percent
Control Group	Grade 10	1	12.5
	Grade 11	5	62.5
	Grade 12	2	25.0
	<b>Total</b>	8*	100.0
Participants	Grade 10	14	19.7
	Grade 11	17	23.9
	Grade 12	30	42.3
	Grade 13	6	8.5
	Post-secondary	4	5.6
	<b>Total</b>	71**	100.0

\* 2 missing

\*\*1 missing

Control Group	N	10
	Mean	1.571
Participants	N	65*
	Mean	1.843

\*7 missing.

	N	Mean	Std. Deviation
<i>When it comes to self-care how much support/assistance do you need?</i>	10	1.100	.3162
<i>When it comes to learning how much support/assistance do you need?</i>	10	2.200	.4216
<i>When it comes to mobility how much support/assistance do you need?</i>	10	1.000	.0000
<i>When it comes to self-direction how much support/assistance do you need?</i>	10	1.800	.6325
<i>When it comes to receptive and expressive language how much support/assistance do you need?</i>	10	1.700	.6749
<i>When it comes to capacity for independent living how much support/assistance do you need?</i>	10	1.700	.4830
<i>When it comes to economic self-sufficiency how much support/assistance do you need?</i>	10	1.500	.5270

<b>Table A36: Overall Support</b>		
<i>What level of support do you need to do the things you do?</i>		
Control Group	N	10
	Mean	1.90
Participants	N	71*
	Mean	2.46
*1 missing		

## 7.1 Control group employment data

<b>Table A37: Paid Work Experience Entry</b>			
		Frequency	Percent
Control Group	Yes	5	50.0
	No	5	50.0
	Total	10	100.0
Participants	Yes	28	38.9
	No	44	61.1
	Total	72	100.0

<b>Table A38: Currently Employed</b>			
		Frequency	Percent
	Yes	3	30.0
	No	7	70.0
	Total	10	100.0

<b>Table A39: Unpaid or Volunteer Work Experience</b>			
		Frequency	Percent
	Yes	9	90.0
	No	1	10.0
	Total	10	100.0

<b>Table A40: Paid Work Experience Exit</b>			
<i>Did you get a paid job?</i>		Frequency	Percent
Control Group	Yes	2	20.0
	No	8	80.0
	Total	10	100.0
Participants	Yes	26	36.1
	No	46	63.9
	Total	72	100.0

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Control Group	Time Expectations Exit - Time Expectations Entry	.03333	.57628	.18224	-.37891	.44558	.183	9	.859
	Organization Exit - Organization Entry	.05000	.43780	.13844	-.26318	.36318	.361	9	.726
	Authority Exit - Authority Entry	-.16667	.39284	.12423	-.44769	.11435	-1.342	9	.213
	Teamwork Exit - Teamwork Entry	-.22500	.76784	.24281	-.77428	.32428	-.927	9	.378
	Perseverance Exit - Perseverance Entry	.00000	.50395	.17817	-.42131	.42131	.000	7	1.000
	Responsibility Exit - Responsibility Entry	-.03333	.55444	.17533	-.42996	.36329	-.190	9	.853
	Motivation Level Exit - Motivation Level Entry	-.10000	.66759	.21111	-.57757	.37757	-.474	9	.647
	Mindfulness Exit - Mindfulness Entry	.06667	.78253	.24746	-.49312	.62645	.269	9	.794
	Self-Awareness Exit - Self-Awareness Entry	.23333	.66759	.21111	-.24423	.71090	1.105	9	.298
	Communication Skills Exit - Communication Skills Entry	-.06667	.37843	.11967	-.33738	.20405	-.557	9	.591
	Appearance Exit - Personal Appearance	.10000	.56765	.17951	-.30607	.50607	.557	9	.591

<b>Table A41: Paired Samples T-Test Meticulon Assessment Survey Control Group Continued</b>									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Participants	Time Expectations Exit - Time Expectations Entry	.02315	.71771	.08458	-.14551	.19180	.274	71	.785
	Organization Exit - Organization Entry	.15387	.74354	.08824	-.02212	.32987	1.744	70	.086
	Authority Exit - Authority Entry	.22535	.64186	.07617	.07343	.37728	2.958	70	.004
	Teamwork Exit - Teamwork Entry	.16197	.59176	.07023	.02191	.30204	2.306	70	.024
	Perseverance Exit - Perseverance Entry	.14085	.79814	.09472	-.04807	.32976	1.487	70	.142
	Responsibility Exit - Responsibility Entry	.15046	.71817	.08464	-.01830	.31923	1.778	71	.080
	Motivation Level Exit - Motivation Level Entry	.01620	.62057	.07313	-.12962	.16203	.222	71	.825
	Mindfulness Exit - Mindfulness Entry	-.02582	.63972	.07592	-.17724	.12560	-.340	70	.735
	Self-Awareness Exit - Self-Awareness Entry	.05314	.66819	.08044	-.10738	.21366	.661	68	.511
	Communication Skills Exit - Communication Skills Entry	.02899	.72477	.08725	-.14512	.20309	.332	68	.741
	Appearance Exit - Personal Appearance	.18310	.89936	.10673	-.02978	.39597	1.715	70	.091

## 8. Reflection about Youth

Tables A42 to A47 reveal the data gleaned from the parent/guardian/caregiver online survey distributed in September and October of 2020.

**Table A42:**  
**Parent/Guardian/Caregiver Relation to the Youth**

	Frequency	Percent
Parent	28	90.3
Guardian	1	3.2
Relative	1	3.2
Caregiver	1	3.2
Total	31	100.0

**Table A43:** *“I am overall satisfied with our experience with the Summer Employment Service Program”*

Mean 4.26	Frequency	Percent
Strongly disagree	1	3.2
Disagree	2	6.5
Neutral	2	6.5
Agree	9	29.0
Strongly agree	17	54.8
Total	31	100.0

**Table A44:** *“Your youth enjoyed learning and experiencing employment related activities”*

Mean 4.26	Frequency	Percent
Disagree	2	6.5
Neutral	3	9.7
Agree	11	35.5
Strongly agree	15	48.4
Total	31	100.0



**Table A45:** *“I feel that the things my youth learned during our time with the program will help them to get a paid job in the future”*

Mean 4.29	Frequency	Percent
Disagree	1	3.2
Neutral	3	9.7
Agree	13	41.9
Strongly agree	14	45.2
Total	31	100.0

**Table A46:** *“I feel like the program addressed potential barriers to employment/volunteer experience/work experience through skill and ability training”*

Mean 4.06	Frequency	Percent
Disagree	2	6.5
Neutral	6	19.4
Agree	11	35.5
Strongly agree	12	38.7
Total	31	100.0

**Table A47:** *“I feel like the program improved the soft skills of my youth (Soft skills refer to social and emotional skills, such as confidence and communication)”*

Mean 4.03	Frequency	Percent
Disagree	1	3.2
Neutral	6	19.4
Agree	15	48.4
Strongly agree	9	29.0
Total	31	100.0

## Appendix B: Moving forward

To begin the discussion, the 2020 IMPACT Cohort has demonstrated positive results. Given the unexpected and unpredictable context of 2020 due to COVID-19, we recognize the incredible work, flexibility, and commitment of the eight partner agencies. While navigating their ongoing roles to support individuals with DD in the agencies, the partnering agencies were able to actively, creatively, and safely engage with 72 youth with positive results. This first cohort brought forward some considerations for the continuation for the IMPACT Project that are useful to delineate here. In general, and given the COVID-19 context, the results prove promising and future cohorts can be considerably strengthened in terms of the statistical results and potential analysis moving forward with the knowledge gained in 2020.

In the spring 2020 there was some discussion whether the first cohort of IMPACT could proceed. After careful consideration and recognition of how COVID 19 has marginalized and impacted individuals with DD, agencies committed whole heartedly in proceeding with Cohort 1. Given suspension of research with human participants at UBC, negotiations were undertaken to ensure the evaluation could proceed with UBC BREB Ethics approval. That said, some alterations to the original proposal were made for pragmatic reasons and given the current context. Moreover, by commencing the work in 2020 we learned many insights that will inform Cohorts 2 and 3.

### ***Instruments***

Several instruments employed for Cohort 1 revealed that some revisions were needed to better engage with the youth answering the questions and increase systematic and concise data collection. The collaboration between the agencies and the Canadian Institute for Inclusion and Citizenship showed some areas where the entrance and exit interviews could be modified to reduce repetitiveness and address accessibility issues related to communication. Moreover, additional demographic questions were identified that will enhance our data analysis moving forward. Furthermore, we learned that some of the demographic questions are better asked of the parent/caregiver(s). In addition, the Meticulon Assessment Scale will be conducted with the parent/guardian/caregiver in the future cohorts. Including the results of the MAS Scale with youth continues to be important. That said, including the parents results with the MAS Scale opens up further opportunities for robust analysis related the effects of IMPACT.

### ***Sex/Gender based analysis***

As indicated, male-identifying youth with DD are more represented in IMPACT. Youth with DD experience discrimination when entering or trying to engage with employment options and the labour market. Differences such as race, ethnicity, visible minority status, and gender intersect in different ways. As such an intersectional analysis will be conducted as the sample allows. In particular, gender proves to be instrumental in gaining access to support and programs that focus on employment. Moving forward it will be interesting to see if IMPACT can add to the research literature on how this gender disparity is evident or not with youth who participate in IMPACT.

### ***The Control Group***

Moving forward, we hope to see increased numbers of youth in the control group. That said, it is an ethical imperative of the agencies participating to not deny support to youth who indicate a desire to be involved in the program. Moving forward we will continue to invite those who express interest to participate but then decline to participate in entrance and exit interviews, and as such be added to our control group. Based on the number of youth in the control group for cohort 1, a comparative analysis and more complex statistical questions were not feasible due to low sample size. However, with the continuation of IMPACT and around 30 or 40 control group participants (while not ideal statistically), this will become more important and indicative of the success rate of IMPACT interventions in relation to our research objective and employment outcomes.

### ***The Parent/Guardian/Caregivers***

The parent/guardian/caregiver survey is the result of a pilot online survey distributed in September and October of 2020. As shown in the results and addressed in the discussion, the 31 responses gained from this survey provided additional useful information regarding the youth, their engagement, and the results of IMPACT interventions. Soft skills addressed in the MAS inventory prove to be visible in other aspects of the youth's lives as well. The parent/guardian/caregiver survey indicates a positive response to IMPACT interventions and affirmation of the youth's capabilities in the open answer questions. This result combined with the agency experiences with the parents/guardians/caregivers created the idea to engage more with this group of people in close contact with the youth to measure and analyse the tailored approach of the IMPACT interventions and to increase the success rate and employment engagement of the youth connected to these agencies and employment programs.

### ***Agency Assessments and Reporting***

An important part of the assessment of IMPACT and the tailored approach envisioned in the study objective is based on reporting of the youth by IMPACT employment specialists. For Cohort 1, the staff conducting data collection received training from the project consultant and lead research (Hole) from the UBC Canadian Institute for Inclusion and Citizenship to ensure the collection of data was conducted consistently and similarly across all agencies. The personal intervention diaries and employment results were catalogued in spreadsheets by the agency employment specialists after each engagement with or on behalf of the youth. Upon review of the data for Cohort 1, we highlighted a need to further ensure a systematic and consistent process of data collection across all agencies. Additional training and support will be provided to the employment specialists involved with data collection for Cohorts 2 and 3. More detailed description of the rationale for reporting will be provided and we will review the diaries after one week of data collection to provide feedback to the employment specialists in order to ensure consistent documentation of activities is occurring. Consistent completion of these diaries, interventions, and employment outcomes improves the reporting on each agency's hard and diligent work and is necessary in order to compare outcomes across agencies and evaluate the outcomes of IMPACT.

### ***Interviews with Employers***

Given the current context of COVID-19, interviews with employers were not conducted for Cohort 1. That said, interviews with a purposively selected sample of employers will be conducted for Cohort 2 and Cohort 3. The employment outcomes of the youth engaged with IMPACT will be assessed through individual interviews with employers or direct supervisors of the youth. Interviews will focus on the employers' experiences with inclusive hiring.

### ***Follow-up Interviews Cohort 1***

In the spring of 2021, IMPACT mentors from the different agencies will follow up with their youth and ask questions regarding their continued employment and job market interactions. This is to gauge the long-term impact of the interventions and skills learned through IMPACT and will be included in the summative report in 2023.