



The Role of Career Education During High School in Post-Secondary Success

FINAL PROJECT Report

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CERIC

Advancing
Career
Development
in Canada

Promouvoir
le développement
de carrière
au Canada

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PROJECT CONTACT



Dr. Reuben Ford, Research Director, Social Research and Demonstration Corporation (SRDC)

Dr Reuben Ford is principal investigator on this project. He is a research director at the Social Research and Demonstration Corporation (SRDC) in its Vancouver office. Dr. Ford has extensive experience in the design and analysis of policy-relevant research and evaluation spanning education, employment, social assistance, family well-being, disabilities and residential mobility. Since joining SRDC in 1998, he has directed the Self-Sufficiency Project and two Motivational Interviewing demonstration projects, initiatives seeking to help long-term assistance recipients take up employment, and helped to design the Disability Supports Feasibility Study and Community Employment Innovation Project evaluations. He has continued this work through development and trial of a benefit income calculator called Calculator BC. Since 2003, he has directed SRDC's team investigating approaches to increase access to post-secondary education across Canada (including Life After High School, Future to Discover, and BC AVID) as well as analyses of learners access to assistive technology and student financial aid. He is a Credentialed Evaluator, as recognized by the Canadian Evaluation Society.

The Social Research and Demonstration Corporation (SRDC) is a non-profit research organization, created specifically to develop, field test, and rigorously evaluate new programs. SRDC's two-part mission is to help policy-makers and practitioners identify policies and programs that improve the well-being of all Canadians, with a special concern for the effects on the disadvantaged, and to raise the standards of evidence that are used in assessing these policies. SRDC accomplishes its mission by evaluating existing programs, and by testing new program ideas at scale and in multiple locations before they become policy and are implemented on a broader basis. Through the analysis of existing programs or the development and evaluation of demonstration projects and field experiments conducted in real-life contexts, SRDC brings together the worlds of academic researchers, policy-makers, and on-the-ground practitioners. The belief that underpins all our work is that credible, well-communicated evidence can make a difference. SRDC has 40+ researchers with higher degrees (one third PhDs) from multiple disciplines.

EXECUTIVE SUMMARY

Please select the Guiding Principle(s) this application ended up actually applying or adhered to. Career development...

- Can be complex and complicated, so context is key - there may be both internal constraints (financial, culture, health) or external constraints (labour market, technology).
- Is dynamic, evolving and requires continuous adaptation and resilience through multiple transitions.
- Is often supported and shaped by educators, family, peers, managers and the greater community.
- Involves understanding options, navigating with purpose and making informed choices.
- Entails determining interests, beliefs, values, skills and competencies - and connecting those with market needs.

If the application of guiding principles changed over the course of the project, please explain why.

Not applicable.

State the over-arching need or gap that you identified that warranted such a project. How does this fill a 'gap' in the career counselling field?

The study adds to the body of knowledge about (a) how and when to intervene to assist youth in their career decision making, and (b) for whom supports are effective yet currently lacking. The findings can be used to help equip the career counselling profession (including CERIC) to respond authoritatively to increasingly urgent policy questions about how optimally to structure career education for young people. We find positive and negative influences from different types of career interventions on outcomes such as career clarity and carrying out of plans. Also mediators (such as parents, teachers, counsellors, peers) influence these outcomes. The findings point to new practices that could be adopted as promising and also encourage development of new tools (a) to support the work of counsellors and (b) to guide students in their planning and decision making regarding career choices early in high school.

The counselling profession realizes that to increase the timeliness and quality of decision-making among students from underrepresented groups, attention needed to focus on a range of possible barriers. Lack of financial resources, poor academic preparation, poor information and lack of interest in education can all hold a student back, with many facing two or three of these barriers at the same time. With a scientifically rigorous design and powerful data sets, this project delivers credible and convincing evidence on what works to influence young Canadians' career pathways. In partnership with CERIC's engaging and far-reaching approaches to knowledge transfer, we expect the findings to attract attention and thus help to cultivate a stronger policy focus on the provision of appropriate supports to youth career-decision making.

We are aware of no comparable dataset or similar study worldwide. The work spans the datasets from three provinces. The findings identify the activities (or sequence of activities) most associated with changing post-secondary outcomes, judged in an absolute sense. These insights are the result of meticulous new coding and analytical work only possible with such a dataset and the engagement of analysts very familiar with it and with youth decision-making more generally.

The results have implications for what may be considered best practices in the field and lend evidence to support efforts to expand initiatives that most benefit future generations of Canadians.

Describe how the project meets CERIC’s mission, vision and strategic priorities.

The project contributes to the CERIC stream “Early intervention to assist children’s career decision making”. Since fundamentally the work is concerned with improving career education in Canada-wide it represents a logical CERIC initiative. The specific objective of the proposed study is to examine the effect of intervening early in different ways - including interactions with existing environmental conditions and supports - on the evolution of high school students’ career decision making and outcomes over time.

Describe the project in broad strokes – clearly state the problem you have identified needs to be addressed, the project purpose, goals, objectives and rough timelines.

The overall goal of the study has been to examine the effect of intervening early in different ways - including interactions with existing environmental conditions and supports - on the evolution of high school students’ career decision making and outcomes over time.

Objective 1: Ensure the project is fully informed by the latest evidence

To ensure construction of the most appropriate analytical models reflecting the latest evidence on successful career development strategies for youth, SRDC updated its understanding of the literature. For the most part this built on earlier work and thus add four years of literature since a similar literature review SRDC undertook for its ESDC project “How Youth Make Career Decisions”. The data collection strategy for the literature review used a variety of research tools, including searching in specialized electronic database using keywords and phrases; a scan of the tables of contents of a number of journals for relevant articles; the examination of references lists of identified studies; the examination of electronic resources from a number of major research centres and institutes with research programs relevant to the subject matter and correspondence with identified authors and subject matter experts. When the searches exhausted these sources, we assumed the literature review was complete.

Objective 2: Code raw data and prepare all data sets

Coding open-ended answers from students at age 14/15 on their occupational aspirations to the National Occupational Classification. Coding their open-ended answers on PSE program choices reported at age 20 to the Classification of Instructional Programs. Coding linked administrative records on PSE program

enrollments for seven years (ages 17/18 to 23/24) to the Classification of Instructional Programs. We measured the match rate of codes to data entries and developed an empirical concordance between NOC and CIP.

Objective 3: Construct and analyze initial exploratory models

A set of exploratory models provided a first look at the different early high school influences on key outcomes such as decisions to pursue postsecondary education, to apply and actually attend postsecondary education, achieving programs matching career aspirations (or not) versus securing employment, over time. The models considered the mediating effect of different career development practices and other supports (e.g. counsellor and parent advice and peer engagement), including the influence of experimental interventions. We measured the association between explanatory factors and outcomes to ensure no critical variables were omitted from the next stage.

Objective 4: Construct and analyze coherent and comprehensive explanatory models

SRDC constructed multivariate models – through deliberate inclusion and omission of mediating factors – to identify the relationship between career influencing inputs and the realization of career aspirations. In this way, the relative importance of many different influences that are amenable to intervention on youth's career pathways can be distinguished from the more-commonly understood socio-economic and demographic influences. We assess achievement of this objective through assessment of the credibility of the resulting relationships and the consistency of the effects between variant models (a form of triangulation).

Objective 5: Generate a credible and convincing written report with accessible output.

The report quantifies the role of different interventions at different stages (experimental and nonexperimental) on youth's career decisions. The results include observations and recommendations as to the types of programming support that can be introduced in high schools in the future with an expectation of success in overcoming barriers to effective decision making. The report underwent an internal review process prior to release to CERIC to ensure the content was rigorous, accessible and convincing.

Objective 6: Disseminate and transfer project knowledge to effect change

SRDC tailored releases for newsletters, social media, PowerPoint presentations/decks and SRDC's website to maximize understanding of the research and its implications among decision makers and practitioners. The material emphasizes what has been learned about (a) how and when to intervene to assist youth in their career decision making, and (b) for whom supports are effective. The dissemination has been targeted as far as possible to help equip the career counselling profession (including CERIC) to respond authoritatively to policy questions about how optimally to structure career education for young people.

Preparation Stage

- Theoretical Lit Review
- Collect lit Apr - Jun 2019
- Collect lit Apr - Jun 2019
- Sys analysis Jul - Sep 2019
- Report Sep - Oct 2019
- Finalize framework and methods Dec 2019 - Feb 2020

Data

- Coding of variables (about 4,500 obs, 60 seconds each, 1 day training) Oct 2019 - Feb 2020
- Analysis file preparation Jan - Mar 2020
- Analysis Stage Model building Mar 2020
- Data crunching and analysis Apr 2020

Reporting Stage

- Report writing May 2020
- Results presentation Jun 2020
- Dissemination Oct 2020 onwards
- No time critical dates were included. SRDC hoped to complete in time to present at Cannexus20 but early staffing changes set the schedule back 4 months and so the work has been presented at Cannexus21.

Talk about your target audience, stakeholders and any partners/ collaborators.

The stakeholders are - in one sense - nearly the entire Canadian population. They include all youth making career decisions (or not doing so) and those who support and advise them such as parents and educators. But all Canadians have a stake in young people selecting the most appropriate and rewarding career path, since their choices matter to employers, governments and those who rely on Canadians' production of goods and services. Ultimately their decisions are determinants of national prosperity, in which everyone is a stakeholder.

The target audience is policy makers, practitioners with responsibility for supporting youth decision making and those who study and advise on policy and practice. Most immediately, the audience comprises policy analysts and decision makers in education departments, school boards, the career counsellors they employ in schools and those who operate nonprofit organizations delivering services that support career decisions such as the Boys and Girls Clubs of Canada.

Clearly state the project deliverables.

- Theoretical and evidence base preparation and Data preparation
- Analysis and Model Building
- Results Presentation
- Reporting and Dissemination including delivery of the project final report with insights gained and learnings captured throughout the project

Was the project carried out as intended? If yes, what was different? If no, skip to next question.

The project was carried out as intended with two exceptions.

The FTD data sets could not be linked to tax records to report more fully on labour market outcomes due to the effects of COVID-19. Statistics Canada closed its research data centres - where the linkage has to be undertaken and analysis performed - from March through August 2020. So this stage was not completed. Also the final stages of dissemination have been delayed including presentation at Cannexus21 instead of Cannexus20.

Did the nature of any of the deliverables change over the course of the project? If so, how and why? If not, skip to the next question.

The Theoretical and evidence base document went from an internal, for CERIC only deliverable, to an external facing document. Thus it needed certain permissions granted first to allow publications. Also, the standard presentation session at Cannexus, was changed to a Learning Lab and therefore required a different kind of presentation, with more audience engagement in advance and during the session.

Did the timelines change? If so, how and why? If no, skip to the next question.

The original analyst slated for the work took a federal government job and so we assigned another who needed maternity leave. These staffing delays added four months to our timelines throughout, and longer at the end since we missed the deadlines for Cannexus20 submissions and had to wait to present at Cannexus21.

What was the anticipated outcome?

We said we would know the project had been successful if:

- The data preparation and analysis yielded convincing models of what works in supporting youth to achieve positive career outcomes; and
- A large number of decision makers and practitioners access the results via the reports, media and presentations; and
- Governments and practitioners report changes in the approaches used to support high school students career decision making in ways that align with the project findings.

How does this compare to the actual outcome?

The first outcome has largely been achieved although we have determined not to attribute positive or negative value to career outcomes achieved until further linkage to different meaningful outcomes can be undertaken (one of which is earnings data through tax records).

We have learned a great deal about how career education intervention can change students' aspirations and education outcomes, and especially transform the expectations and behaviours of students from lower-income families.

At this point, results have been disseminated via a CERIC webinar with 600+ attendees and a Cannexus Learning Lab with maximum (n=200) attendance plus many report downloads so the second outcome has been achieved. It is too early for the third outcome to be assessed although government and practitioner interest and active engagement with the results has been evident from the presentation events.

Were there changes to any other components of the project? If so, what was the nature of the change and what was its impact on the project?

We did not change any aspect of the project. CERIC asked us to publish the first deliverable - the Theoretical and evidence base preparation - which was not anticipated. This necessitated SRDC to engage in a protracted period of seeking permissions for publication of various included diagrams and figures from the authors of the cited studies. This was completed and the report was released by CERIC in late April 2020.

THE NEED FOR THE PROJECT

Discuss the need for this project and describe changes, modifications, adaptations, if any, and very brief justifications to the originally presented problem to be solved.

While Canada is an international leader on many indicators of K-12 education performance (OECD, 2019) and has among the highest rates of PSE attainment of all OECD countries (Buchanan, 2013), it still has a significant proportion of youth who leave the formal education system ill-equipped for their transition to the world of work. Transition “derailment” can take many forms:

- Students leaving high school before graduating;
- High school graduates who go straight to the workplace but struggle to provide the job skills required of them;
- High school graduates who go on to apprenticeships, college or university but who drop out, or switch inefficiently to other programs, citing a lack of “fit”;
- PSE graduates who secure employment after graduation for which they are substantively overqualified who can question the investments they made in PSE (which can, in turn, deter others from making educational investments) and feel dissatisfaction with their work; and
- PSE graduates who struggle to demonstrate the skills required by employers, who seek to switch occupations or upgrade their skills further.

According to Connelly, Blair and Ko (2013), Canadian students typically exit education with insufficient career education and first-hand experience of the labour market: “fewer and fewer students leave high school with exposure to the world of work, yet we expect them to choose a post-secondary education (PSE) pathway that will lead to a career” (p. 13). If students leave high school without a basic idea of who they want to become and are under- or mis-informed about the relevant opportunities open to them, it becomes inevitable that they will not plan appropriately and find themselves making what in retrospect turn out to be poor choices. Even among those who enter into postsecondary education, a substantial number leave before completing – and therefore fail to reap the full rewards of their investments (and governments’ and others’ investments) in their education. Derailed transitions can cost students valuable time and money – relative to a successful transition – as they engage in education without gaining a credential or the full benefit of the investment. The chances of ending up in precarious employment or unemployment can increase. The situation can become chronic if they cycle through periods of work, poorly focused re-training and unemployment. They may ultimately find themselves losing self-confidence due to unemployment or underemployment.

To tackle such problems, educators as well as policy and program decision-makers are likely to want to develop measures to target youth at different stages of their educational and early labour market careers. Truly informing youth’s decisions goes beyond the provision of career education. It must also embrace how youth access and use information to become rational decision-makers (see Arcidiacono et al., 2014). Well-designed supports to career-decision making would ideally be delivered in ways that help youth grow into discerning consumers of education, who know when and how they should invest in their futures for optimal impact on their later lives. Such refinement and customization of career education – broadly-defined – need to be founded on the best evidence concerning how such interventions fit into youth’s decision-making, which is where this project is intended to make a contribution.

PURPOSE, GOALS AND OBJECTIVES

Summarize the purpose, goals or objectives.

Overall Objective and Purpose:

The specific objective of the proposed study is to examine the effect of intervening early in different ways - including interactions with existing environmental conditions and supports - on the evolution of high school students' career decision making and outcomes over time. It does this by investigating the role of career education on students' educational choices and postsecondary outcomes using two rich longitudinal data sources created through two of SRDC's pilot projects. It examines how piloted early career education interventions and other tracked career-related activities experienced by high school student participants in the BC Advancement Via Individual Determination and Future to Discover pilot projects affected the evolution of their career decision making. The design of both data sets allows a high level of confidence in the estimates of causal effects of the designated interventions.

PARTNERSHIPS AND COLLABORATIONS

Briefly describe intended partnerships and collaborations.

The project is analytical, representing a partnership between SRDC and CERIC. In addition to funding and guidance on project activities, the dissemination phase takes advantage of CERIC's engaging and far-reaching approaches to knowledge transfer. Through this, we expect the findings to attract attention and thus help to cultivate a stronger policy focus on the provision of appropriate supports to youth career-decision making in future.

If the project involved collaborating with another/other organization(s), including any not referred to in your proposal, please comment on the collaboration's effect on the project and how this process influenced you, your organization and your partner organization(s). What role did your collaborator(s) play? How often and in what manner did you meet with your collaborator(s)?

None.

What non-financial supports did you request and/or receive from CERIC (e.g. marketing, etc.)? How did this impact your project?

None.

ACTIVITIES AND RESEARCH METHODS

Describe your project's activities and/or research methods.

The data collection strategy for the literature review entailed the use of a variety of research tools, including searching in specialized electronic databases using keywords and phrases; a scan of the tables of contents of a number of journals for relevant articles; the examination of references lists of identified studies; the examination of electronic resources from a number of major research centres and institutes with research programs relevant to the subject matter and correspondence with identified authors and subject matter experts.

The study utilized a theory-driven methodology that harnessed the power of the original experimental design alongside non-experimental econometric analysis to tease out the relationships between mediating and moderating factors in career decision making. This method was recently applied with success to the Future to Discover data in an analysis of the interactions between aspirations and savings accounts on post-secondary education decisions, funded by ESDC:

<https://www.srdc.org/media/200058/pse-aspirations-report-en.pdf>. Future to Discover originally tested two new interventions offered to a proportion of the 5,400 project participants selected at random. The interventions were (a) an expert-designed 40-hour program of enhanced career education and (b) an early guarantee of a student aid grant worth \$8,000 conditional only on enrolling in post-secondary education. AVID offered 400+ hours of a new elective class over 4 years of high school where teachers and near-peer tutors (Grade 12 and post-secondary students) delivered a learning-how-to-learn focused curriculum including how to take notes, collaborate, prepare for tests, write essays, read critically, question and debate. AVID students had access to additional career counselling support and campus visits. Each project included a "business as usual" statistically-identical control group who also accessed existing educational services. The groups experiencing one or more of the new interventions had no existing services withdrawn. The variation in use of existing services as well as the experimentally introduced ones will be harnessed to tease out the effect of each on career decisions and outcomes.

The data work commenced with some critical but time-consuming and hence expensive initial data coding exercises. In 2004-6, SRDC captured students' occupational aspirations (when participants were aged roughly 14) but had not coded or used these data in analysis before this study. SRDC has also collected complete education records through secondary and postsecondary education up to and including programs' field of study alongside early employment at ages 18 to 24 (whether they were continuing in education or not). As part of the project, these items were coded to the Classification of Instructional Programs and National Occupational Classification. Survey data on career supports and decisions were prepared and processed by the team for analysis.

Models for the influence on youth career decisions over time were constructed. The analysis started with a simple exploratory analysis of youth experience of different influences and key outcomes such as decisions to pursue postsecondary education, to participate in postsecondary education programs of different types, in programs matching career aspirations (or not) versus securing employment, over time.

The analysis focused on estimating impacts and influence of these career education inputs and supports on student decision and behavioural outcomes. The newly-introduced interventions (enhanced career education, early student aid guarantee and learning-to-learn focused elective class) were examined experimentally. Experiences of these factors have also been exploited using non-experimental analysis to determine which are associated with different career outcomes, controlling for students' background characteristics. Furthermore the strength of these factors as independent influences on career outcomes can be gauged by how much the introduction of the experimental treatments from Future to Discover and AVID changes experience of each factor and thus influences key outcomes indirectly via these factors. Results from this impact analysis form the basis of the results presentation quantifying the role of different interventions on youth's career decisions for dissemination. Outcomes are defined by matching aspirations to outcomes (occupation, field of study and program type) to inform future policy concerned with how and when youth make decisions. This analysis indicates when types of programming support can be introduced in high schools to influence student decision making.

Manipulation of the multivariate models – through deliberate inclusion and omission of mediating factors – has helped to identify the relationship between career influencing inputs and the realization of career aspirations. In this way, the relative importance of many different influences that are amenable to intervention on youth's career pathways and their association with different outcomes can be distinguished from the more-commonly understood socio-economic and demographic influences.

Detail your activities, milestones etc. and any changes therein over the project life-cycle. Consider a chronology of actual events/activities and milestones to tell the story of how your project unfolded.

The Theoretical and Evidence Base was constructed by undertaking a literature review to update an original literature review produced for ESDC in 2015 as "How Youth Make Career Decisions". The new literature was collected in August - September 2019, analyzed by mid-October 2019 and the report was submitted to CERIC by month end.

SRDC worked to finalize the research framework for analysis and model building between Nov 2019 - Feb 2020. This work involved all the new data coding and data set preparation as well as translation of the career model expectations from the earlier literature into the analysis framework and models to be tested empirically using the data. Also over the period we engaged unexpectedly in chasing down many of the cited authors from the literature review to obtain (and in some cases pay fees for) clearance to use figures/charts and/or diagrams in a published version of the literature review. Although not reflected in the report, we continued preparation for analysis with more coding in Stata: by developing the derived variables and setting up the analytical models to ensure the proposed analysis would be possible.

We finalized permissions for publication of the literature review on March 2, 2020 and supported CERIC in its actual release via the CERIC website on 29 April.

Empirical data analysis began in March soon after the submission to CERIC of the research framework for analysis and model building. The WHO declaration of a global pandemic on 11 March complicated arrangements for working with the data such that work on the results presentation continued into May 2020. SRDC submitted the results presentation to CERIC on 7 June 2020. CERIC provided feedback on 4 August 2020.

SRDC continued collaboration with CERIC to disseminate the work starting in October 2020. A webinar took place 23 November 2020 and we pivoted to a Cannexus Learning Lab once the conference went virtual. Given the webinar already being made available online for people to access, the learning lab gave us a different way to present our findings and engage stakeholders at CANNEXUS. The Learning Lab on 27 January 2021 was fully subscribed. This was accompanied by an article in the *Careering* magazine published on 19 January 2021, roughly the same time.

As applicable to your project, for each of your activities or milestone, detail factors that were helpful, factors that were challenging or presented obstacles and areas where changes were required as a result.

Encouragement and support from CERIC as well as flexibility in the adjustment of timelines were very helpful in supporting the production of the work. The pandemic led to restrictions on Statistics Canada Research Data Centre use which was challenging: it ruled out consideration of analysis using data from tax records that can only be linked to FTD data within research data centres. The centres were closed throughout the main analysis period. The Carleton, Ottawa, Outaouais RDC (COOL RDC) which SRDC typically uses remained closed until very recently. As it has re-opened SRDC has submitted its application to undertake linked analysis of earnings data. The pandemic is also removing the opportunity for in-person dissemination at Cannexus. Dissemination activities will be entirely virtual for the foreseeable future.

Clearly state where activities differed or deviated from activities proposed in your application.

No activities deviated from those proposed in the application. Although it was not proposed in our application, we wanted to take the analysis further to link to tax records but could not do this in 2020 due to COVID closures. The application also did not mention the specific dissemination activities but we pivoted when requested adding a Learning Lab instead of a straight presentation as requested in the contract.

TIMELINES AND DELIVERABLES

Describe your project timeline.

- The new literature for the Theoretical and Evidence Base was collected in August - September 2019.
- Literature was analyzed by mid-October 2019 and the report was submitted to CERIC by end-October 2019.
- SRDC worked to finalize the research framework for analysis and model building between Nov 2019 - Feb 2020.
- We finalized permissions for publication of the literature review on March 2 2020.
- SRDC supported CERIC in its actual release via the CERIC website on 29 April.
- Data analysis began in March soon after the submission to CERIC of the research framework for analysis and model building and work on the results presentation continued into May 2020.
- SRDC submitted the results presentation to CERIC on 7 June 2020. CERIC provided feedback on 4 August 2020.
- A CERIC webinar took place 23 November 2020.
- Cannexus Learning Lab for 27 Jan 2021.
- An article in the *Careering* magazine was published 19 January 2021.

Were reporting and other deliverables given on time and what possible adjustments needed to be made to proposed timeline given outside considerations (e.g., ethics approval from outside agencies; unanticipated delays or interruptions).

Initial staffing challenges added about 4 months to the project stages and deliverable dates. The pandemic led to restrictions on research data centre use which was challenging: it ruled out consideration of analysis using data from tax records that can only be linked to FTD data within research data centres. The centres were closed throughout the main analysis period. The Carleton, Ottawa, Outaouais RDC (COOL RDC) which SRDC typically uses remains closed at the time of writing. The pandemic is also removing the opportunity for in-person dissemination at Cannexus. Dissemination activities will be entirely virtual for the foreseeable future. The pandemic also slowed down data analysis at SRDC such that the results presentation was completed by early June 2020.

Describe the intended deliverables from your proposal. List in bullet form all of the project deliverables.

- Theoretical and evidence base preparation and data preparation
- Analysis and Model Building
- Results Presentation
- Reporting and Dissemination including delivery of the project final report with insights gained and learnings captured throughout the project

If different from what was initially stated, specify and explain. Provide details of each project deliverable in the Appendix.

Not different from initially stated.

Describe any deliverables including specific documents or learning materials developed over the course of the project. Detail the target audience(s) for each deliverable.

The Theoretical and Evidence Review provides an extensive source of learning materials on the evolution of thinking and evidence in youth career decision making. Students, researchers and practitioners may find this of value. The webinar, Learning Lab presentation and *Careering* articles are learning materials found of value by members of the practitioner community.

If your project involved data collection, including surveys, focus groups, participant's feedback, quotes that informed product development, etc. provide some details – purpose of the data collection, what type of data was collected? Where was data stored?

The project did not collect any new data.

Were there any ethical considerations? Any challenges or setbacks? How did you mitigate these?

There was extensive review of earlier phases of data collection and provision of experimental services as part of these projects. Those activities were completed over 10 years ago. The main ethical concerns in this study involve the presentation of the findings. Efforts are required to ensure no personally identifiable information is released through careful censoring of table cell sizes.

SRDC has followed its procedures for analysis to ensure the public results are fully anonymous and no personally identifying information is revealed.

MARKETING AND DISSEMINATION

How will the initiative be promoted and marketed to its intended audience?

- Publication of theoretical and evidence base and announcement on CERIC website on 29 April 2020 plus CareerWise and social media tie ins (completed)
- Publication of Results Presentation and announcement on CERIC website in October 2020 plus CareerWise and social media tie ins (completed)
- Free webinar on 23 November 2020.
- *Careering* article 19 January 2021.
- Cannexus Learning Lab on 27 January 2021.

How were deliverables shared? How did you market and/or disseminate outputs/findings/learnings of the project?

SRDC tailored releases for news media, social media, CERIC presentations on SRDC's website to maximize understanding of the research and its implications among decision makers and practitioners. The material developed emphasized what has been learned about (a) how and when to intervene to assist youth in their career decision making, and (b) for whom supports are effective yet currently lacking. The dissemination has been targeted as far as possible to help equip the career counselling profession (including CERIC) to respond authoritatively to policy questions about how optimally to structure career education for young people. SRDC presented the results in a Cannexus Learning Lab and a regional career development meeting organized by Ontario Guidance Leadership Association on 9 February 2021. SRDC worked with these organizations to ensure the deck and report were readily available for download.

What was your plan? What strategies did you use? What were critical factors that impacted the successful implementation of your plan?

SRDC prepared a more accessible summary to accompany the technical results presentation in October. An article for *Careering* was released simultaneously with CANNEXUS, based on the summary. We overhauled the material and gathered audience expectations before and during the session to ensure the Learning Lab related closely to the interests and needs of the 200+ people attending. We circulated an agenda for action developed in the session to attendees afterwards. SRDC publicized the findings via social media as CERIC released these publications. In partnership with CERIC's engaging and far-reaching approaches to knowledge transfer, the findings have attracted attention and thus contribute to cultivating a stronger policy focus on the provision of appropriate supports to youth career-decision making in future.

For Research Projects, tell us about the status of your research being published in the CJCD (either already published at time of final report submission or publishing in the journal is in progress).

No publication in CJCD is planned.

Was the dissemination successful? How could you tell?

The dissemination was successful, gathering large to maximum capacity audiences. The webinar had more than 600 attendees live. The Learning Lab was oversubscribed and engaged its maximum attendance allowed of 200. There were many comments and questions during and after both events. I am not able to access report download statistics on the CERIC website, but the first report has been the most popular download on my ResearchGate account since being placed there.

REVENUE GENERATION / COST RECOVERY

If you had developed strategies for to generating revenues within the project, describe these and speak to how you did in relation to how you expected to do (as per your proposal).

None.

EVALUATION AND MONITORING

Explain how you will know whether the project has achieved success.

We said we would know the project had been successful if:

- The data preparation and analysis yielded convincing models of what works in supporting youth to achieve positive career outcomes which we can determine from the analytical fit of the models to the data and alignment with theoretical models and findings.
- A large number of decision makers and practitioners access the results via the reports, media and presentations which we can tell from the attendance at dissemination events and downloading of our reports, as well as the questions raised about the implications for their work.
- Governments and practitioners report changes in the approaches used to support high school students career decision making in ways that align with the project findings. We will gather this information over time through dialogue with government and education partners in SRDC's many other projects who engage with CERIC produced materials and with other decision makers influenced by them.

What evaluation tools did you use? How did you evaluate? Describe the inputs to the project, the process and the results, including the impacts.

We do not plan to undertake further evaluation since the proposed project is itself the final stage of SRDC's evaluations of career interventions.

SRDC will monitor web analytics on report downloads, presentation downloads and enquiries related to the project. We expect CERIC will do the same as it publicizes the availability of these deliverables via its website and newsletters such as CareerWise. SRDC will track attendance to its presentations and other events involving practitioners and decision makers where the results are presented.

In the normal course of SRDC's business it keeps track of developments in career education. Following the release of the proposed study's results, we will ensure these environmental scans take stock of changes in career development policies and practice that reflect or mention the study findings.

Describe the connections between evaluation tools you used for the project and the goals you have identified.

It is very hard to link policy change to specific projects, but when policy makers and their advisors seek out reports, presentations or discussions with researchers and cite findings in their briefings and policy documents, a connection between evidence and policy is implied.

What specific marketing activities (website tracking; presentations; exhibits; blog posts; Twitter) were used in terms of project evaluation metrics?

We hope to use website tracking, at least two online presentations plus an article in Careering magazine. SRDC has provided posts on Twitter.

You provided three letters of support from key stakeholders. What impact did your project have on them? Was the impact different from what they anticipated from the project?

Engaging stakeholders for feedback is difficult at present due to pandemic and other disruptions. The policy and practitioner stakeholders have written to say they are glad the work is garnering interesting findings. These two stakeholders have left the positions and organizations they occupied at the time of providing the letters. Our high school based stakeholder - like other educators - is very preoccupied with COVID-related return to school activities. But he spoke about the importance and influence of the results as a panellist at the Cannexus Learning Lab.

IMPACT ASSESSMENT / OUTCOMES

Explain the intended outcomes from your proposal and describe data collections methods and tools.

The intended outcome was to be able to share an improved understanding of how career education and related interventions for youth of high school age influence the relationship between their original aspirations for the future, their later aspirations and their choices as to what to do after high school.

What were the actual outcomes of the project?

The actual outcome was an improved understanding of how career education and related interventions for youth of high school age influence the relationship between their original aspirations for the future, their later aspirations and their choices as to what to do after high school. We are currently working with CERIC on how to share these findings most effectively.

What were your measures of success? Be specific. For example, in the case of a website project, talk about the usability and navigability of the site, speak to the content of the site, etc. If tools or guides were being developed, provide examples of tools and plans for the use of the guide.

We considered the relevance and comprehensiveness of the literature review, the coherence of the analytical models to be tested, completion of the required new coding for nearly all participants, the coherence and credibility of the results as measures of success.

Were there any unexpected outcomes or unintended consequences?

No.

KEY FINDINGS / INSIGHTS

Share your key findings from the project. Provide any insights and any learning from the project.

This exploratory study found evidence to support the notion that career education in high school changes students' career choices and pathways. However, the results are very complex so it may help to characterize them with some general unifying conclusions. See Appendix A for a description of the career interventions that were analyzed: from the Future to Discover (FTD) project - Learning Account (LA), Explore Your Horizons (EYH) and LA+EYH; and the BC Advancement Via Individual Determination (BC AVID) project. With so many findings, it is important to draw out some generalities even when this is at the risk of dropping some qualifications or exceptions made clear in the report. Our initial assessment draws out the following broad conclusions on the patterns seen and their plausible explanations:

- The LA early guarantee of a post-secondary grant and EYH offer of career education workshops appeared to directly impact lower-income students, switching them away from their early career aspirations. BC AVID similarly had large negative impacts on students from lower-income families carrying out their early career aspirations. In general, and perhaps challenging some assumptions in the literature, career education is especially influential for students from lower-income families. The EYH career education significantly increased their enrollment in postsecondary education, especially university in New Brunswick. We now know these impacts arose because career education caused students from lower-income families to change their aspirations during the course of high school.
- There is evidence that the effect of EYH workshops for students from higher-income families was more often indirect, inducing them to increase volunteering activities. Volunteering is an experiential method of learning that contributes to vocational identity and career readiness. Among this group, likely better able to afford time and have opportunities to volunteer, more tended to change career paths as an effect of the volunteering. They were able to realize their existing aspirations. This pattern was not evident among lower-income students offered the same workshops.
- Career education interventions typically increased the number of other career-related activities students engaged in, which appeared in turn to delay some disinterested students from entering the labour market via easy-to-obtain jobs straight after high school.
- The EYH career education workshops altered the proportions of students from higher-income families experiencing mediating factors (participation in more 'other' career activities, high parental valuation of PSE and increased volunteering) but had no effect on the prevalence of these experiences for students from lower-income families. However, LA did change these experiences (and increased academic engagement) when offered on its own or in combination with LA. This suggests that such students are unlikely to additionally engage in career-related responses (behaviours and activities) available to them unless the financial barrier to PSE is clearly going to be addressed. That said, EYH alone did have direct impacts on career pathway outcomes
- (continuing the early career aspiration; improving career clarity; carrying out the postsecondary plan) just not via the analyzed potential mediating factors.
- Relatedly, the findings are consistent with career interventions realigning students' early focus, choices, and plans more often for those whose parents had not attended PSE (whose children typically are less likely to access PSE) while doing more to reinforce the existing early choices and

plans among those whose parents had attended PSE (who are typically reported as better able to promote PSE as a destination to their children).

- Notably, the interventions decreased the likelihood that students from lower-income households carried out their early career aspirations directly suggesting that career programming is more effective changing the focus and choices of youth with more disadvantaged backgrounds.
- Both the LA early guarantee of a post-secondary grant and EYH career education workshops increased parents' valuation of PSE (the EYH career education workshops included a component targeting parents, but LA did not). Interventions including LA and BC AVID increased students' academic engagement. These changes in turn influence outcomes such as career clarity, and whether youth carry out their early career aspirations. Having parents who value PSE and increasing academic engagement are associated with an increased likelihood of carrying out the early career aspiration. At the same time, increasing academic engagement reduces career clarity, perhaps due to increasing the range of attainable PSE options.
- The study also found evidence of career teachers/counsellors, parents, and peers influencing the impacts of career education. Talking to a career counsellor did not seem to change much the impacts of FTD interventions on students' career pathways, though the combination of the LA early guarantee of a post-secondary grant and talking to the career counsellor helped students stay on track to carry out their early career aspiration. Engagement with parents was associated with a higher likelihood of continuing and carrying out early career aspirations, though lower-income students offered the LA grant appeared more often to need to engage their parents in order to change their career choices through PSE. Parents' role seemed to diminish once students entered PSE or the labour market. Finally, peers with a positive view of PSE influenced how students offered career education finalized their post-secondary choices.

Provide any reflection on project implementation process and learnings from the project.

The project resulted in a complicated set of findings from a very rich dataset, made richer as a result of CERIC supporting extensive new coding of occupational data. The scale of the project to date reflects the available timeline and budget, and also limitations placed by COVID-19 on access to Statistics Canada Research Data Centres through much of 2020. No analysis has been possible yet using information on students' linked tax records as a result. While a large set of findings that sheds important light on poorly understood yet critical stage of youth career-decision making has been generated, we realized at the analysis stage how much more needs to be done to better understand youth career decisions and the meaning of their outcomes, both with these data and through the generation of new datasets.

Did the project partnership funding lead to any capacity-building within your organization? Within your community stakeholders?

The project provided an opportunity to develop new methods that can be applied in future projects around the matching of career aspirations to outcomes. The work represented a key assignment for a new SRDC employee to engage in all phases of a major research project, and so contributed considerably to her professional development.

How might the learnings from the project impact your service, methods and future thinking?

We have had much opportunity to reflect on how analytical models can best capture career decision-making, given that it is a complex process with many inputs and outcomes. Many studies break the process down to simplify the analysis and presentation of findings. By starting with a comprehensive literature review and using two rich longitudinal data sets with four experimental treatments spanning ten years of young Canadians' lives, we have learned a great deal about the many influences at work and their consequences by developing new approaches. We now recognize how difficult it is to simplify and summarize the findings from such a wide-ranging analysis.

To move forward, we need to continue the work to make more sense of the findings. At the risk of further complication, the work cannot proceed without considering critical further dimensions influencing decisions and career education access such as gender and linguistic heritage. We should explore application of these methods to new datasets (or participate actively in their creation) to embrace Indigenous and racialized dimensions of career decision making.

The authors will continue these early efforts to mobilize the knowledge already gained, to increase its relevance to practitioners and utility to decision makers. By presenting the work in different forums and formats we hope to gain peer advice and insights that will improve the usefulness of the findings. Vitaly, young people themselves need to be engaged in interpreting findings, shaping future analysis and co-designing new career interventions to test.

Our workplan moving forward from this exploratory study includes:

- Developing proposals to continue this study that will support additional data analysis, including applications to Statistics Canada to link additional youth outcomes from tax records and improve the meaning of the findings obtained here.
- Proposing and running new studies specifically to test the hypotheses being generated, to incorporate the impact of online high school career interventions such as Xello and myBlueprint and other recent rapid improvement in labour market information that has become more mainstream over the period since FTD and BC AVID began.
- Projecting the results onto the labour market and educational realities of the 2020s, to ensure further recommendations are relevant to an era transformed by the consequences of the COVID-19 pandemic, automation and artificial intelligence, other influences on labour market precarity, new online learning as well as diversity and inclusion.

If the project involved collaborating with another/other organization(s), what lesson(s) did you learn about your collaboration process?

Not applicable.

NEXT STEPS AND RECOMMENDATIONS

What next steps would you recommend to enhance work done through the project or contact information for those interested in their area of work or, again, future projects to continue to support evaluation?

While a large set of findings that sheds important light on poorly understood yet critical stage of youth career-decision making has been generated, much more needs to be done. We hope other analysts will be motivated to use FTD data – publicly available in Statistics Canada Research Data Centres – and other newly linked longitudinal data, to explore outstanding questions on youth career development.

Policy makers and practitioners who would like to change youths decision making are typically seeking to do so with a purpose. There are many different possible purposes, for example:

- Improve life chances of the youth involved (health, wellbeing, earnings);
- Improve the functioning of the labour market or economy, including minimizing disruption in future, adult career transitions;
- Reduce the time spend out of work or NEET, underemployed or in occupations where their skills are misaligned with the tasks they must perform.

To meet their needs more fully, it will be helpful to align youth long-term outcomes in our analysis with some pre-defined sets of needs so as to add meaning to the way career education influences the pathways chosen. Then it could be possible to use the same data to determine factors associated with better meeting those pre-defined needs and recommend changes in career programming to better meet the needs. More simply, occupational outcomes might be ascribed values in relation to labour market demand, average earnings or levels of occupational satisfaction. This work requires access to Research Data Centres and FTD linkage to tax records. We have applied to Statistics Canada to create the analytical opportunity to move to this next stage of work, subject to funding. We recommend pursuing as many of these steps as possible in future analysis to help ascribe more meaning to the outcomes we have been able to report on.

APPENDIX A

Career Education Interventions

The interventions tested provided very different types of prompts to youth that might influence their careers. Different groups of youths experienced three interventions in four permutations (since one group received a combination of an early promise grant together with enhanced career education workshops). This diversity was intentional given that CMEC describes career education as the composite of school-based activities and experiences designed to prepare and engage individuals in their career development.

From the FTD project (51 high schools):

- **Learning Account (LA)** – A promise made at the end of Grade 9 of an \$8,000 grant in Grade 9 automatically payable upon enrolment in postsecondary education over two years. LA removes a financial barrier to pursuing a career of interest. Having money on the table from the start of high school conditional on taking up a PSE program on graduation may motivate more consideration of PSE and thus help engage more in career development activities during their high school years. Many will consider it a relatively narrow and passive career education intervention providing youth only with information on guaranteed financial aid availability, albeit early enough to motivate changes in behaviour through high school, including seeking other sources of existing career support.
- **Explore Your Horizons (EYH)** – These expert-designed career education workshops support all participants in preparing for career development: a carefully constructed developmental sequence of classroom-based activities aimed to support youth (and, to some extent, their parents) in understanding how to use sufficient, unbiased information to focus on career choices (including the costs and benefits likely from pursuing different occupational choices) and also in guiding their behaviour as they try to navigate a path towards attainable and preferred careers.
- **LA+EYH** – Support for engagement and preparation with more certainty of the availability of financial aid, by combining the supports in the above two interventions.

The FTD sample is drawn as a representative sample from each participating school but only students from families with incomes below the provincial median (“lower-income families” below) could be offered LA. Hence analysis is partitioned by family income and results for higher-income families are only available for EYH on its own.

From the BC AVID project (14 high schools):

- **BC AVID** – Based on the well-established AVID program in 4,500 U.S. high schools. BC AVID promotes and supports academic engagement intended to change the high school experience of students believed to have as-yet-untapped

potential to succeed in PSE.¹ They attended elective classes with specially-trained PSE-focused educators to learn strategies for tackling more rigorous classes and with attention from AVID-trained counsellors throughout high school. BC AVID thus sought to both engage and prepare students by pushing them to strive for more ambitious career goals and opportunities, while supporting them to achieve them.

By examining how these interventions changed youths career pathway outcomes relative to the equivalent control groups who experienced educational programming, career counselling and financial aid as normally provided in the same high schools, the study has learned a great deal about the role played by such factors in career decision making, and how student characteristics, parents, peers, counsellors influence the experience of career education in high school.