let's talk science

Impact of Youth Career Awareness Programming

Youth Career Awareness and Development

Science, technology, engineering and math (STEM) impact nearly all aspects of our lives and are transforming the world of work. Youth must develop appropriate competencies and understand how work is rapidly evolving so they can make purposeful decisions about their futures. Let's Talk Science is committed to supporting both goals and, with this report, offers an overview of our impact as it relates to career awareness and development activities.

Let's Talk Science offers a variety of career-focused programming and resources for Early Years – Grade 12 (EY-G12) youth and their key influencers (i.e. educators, parents and volunteers). Let's Talk Science post-secondary volunteers are also considered a key audience for professional development programming that improves their volunteer abilities as well as their own career readiness.

let's talk science

Increases awareness about STEM careers and pathways

Changes the image of science and 'who does STEM'

EY-G12

INCREASES:

Interest in STEM

Desire to take optional STEM courses in high school

Desire to study STEM at post-secondary

Desire to have a career in STEM

Post-secondary

Promotes application, enrolment and graduation in STEM at post-secondary

Increases career readiness skills and opportunities to prepare post-secondary volunteers for their careers

Career development starts early and is a lifelong process. Along the way, there are many barriers that prevent youth from considering careers in STEM:

- ✘ Stereotypical views about STEM careers and who does STEM
- ✘ Lack of awareness of the breadth and diversity of STEM careers and post-secondary pathways
- ✘ Lack of relevant and meaningful role models

Let's Talk Science:

- ✔ provides a multi-pronged approach to supporting career awareness and education, including an interactive, career exploration website complete with profiles, videos, career information, lessons, campaigns and competitions that showcase diverse people and multiple pathways (including skilled trades, college and university);
- ✔ connects students with meaningful role models through the Let's Talk Science Outreach program
- ✔ provides educators with career education workshops, online resources and career information embedded in all professional learning workshops
- ✔ provides post-secondary volunteers with professional development, networks and hands-on experiences to build their career readiness skills and improve their employability after graduation

Measuring the Impact

Let's Talk Science takes a multi-pronged approach in gathering evidence to understand its impact. Evaluation strategies involve quantitative and qualitative data, and range from traditional methods such as pre/post surveys, to longitudinal research, large datasets and case studies. Evaluation methodology is carefully selected based on the programming and type of intervention.

The following sections describe key goals related to career awareness, the environment and outcomes achieved by Let's Talk Science.

GOAL →

Increase youth awareness about the breath and diversity of opportunities in STEM by supporting exploration that showcases diverse people and post-secondary pathways.

THE CHALLENGE →

Very little has changed in the occupation expectations by youth over the last 20 years. Labour market demand forecasts are not aligned with the occupations that youth are most interested in.[1] Furthermore, there is a lack of awareness about careers that require STEM skills and educational pathways beyond traditional university STEM programs.

1. Mann, Denis, Schleicher, Ekhtiari, Forsyth, Liu, & Chambers, (2020) Dream jobs? Teenagers' career aspirations and the future of work. OECD Better Policies for Better Lives

Let's Talk Science increases awareness about STEM careers and pathways

73% of youth
indicated a strong increase in awareness of jobs/careers that need a STEM background after participating in the Let's Talk Science Challenge.

550,000+
page views of Let's Talk Science online career profiles.

50% Grade 7–12 & 39% Grade 4–6
students indicated a strong increase in awareness after participating in hands-on outreach programming.

Let's Talk Careers in partnership with Chatterhigh:

Let's Talk Science career profiles were explored **200,000 times by 12,500+** unique students. (representing over 200 Classification of Instruction Program categories)

*Data is from 2019-2020

- Students indicated general awareness of the profiled programs approximately **55% of the time**.
  ♀ females indicated awareness **56%** ♂ males **53%**
- Students indicated stronger interest in programs/careers that they had heard of before than those they had not. This was the case for both STEM and non-STEM programs, indicating the importance of early exposure to career information.
- On a scale of 1-4, female students rated their interest in STEM programs lower than male students
  ♂ male students **2.03** ♀ female students **1.77**

The results of this career discovery campaign inspired Skills Canada to partner with Let's Talk Science to increase awareness of skilled trades.

GOAL →

Change the image of science:

Who 'does STEM' and who can be a scientist

THE CHALLENGE →

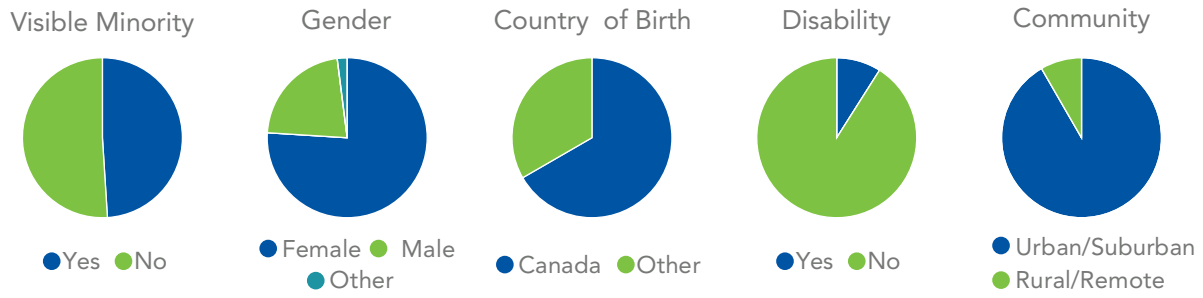
Youth continue to equate STEM skills and knowledge with traditional jobs and children often hold a specific image of what a scientist looks like. Youth need to see more people like them to imagine their own future in the field.

Mobilizing Diverse Role Models

The Let's Talk Science Outreach program mobilizes more than 3,000 post-secondary volunteers at more than 50 outreach sites across Canada to deliver over 7,000 activities annually to EY-G12 youth. Educators regularly note the importance of the post-secondary volunteers as role models for the students and that volunteer diversity helps build positive images of "who does science".

> "Through your volunteers, girls can *'see themselves'* in the field of Science."
> *- Educator*

Let's Talk Science post-secondary volunteer diversity dimensions in 2019-2020[2]

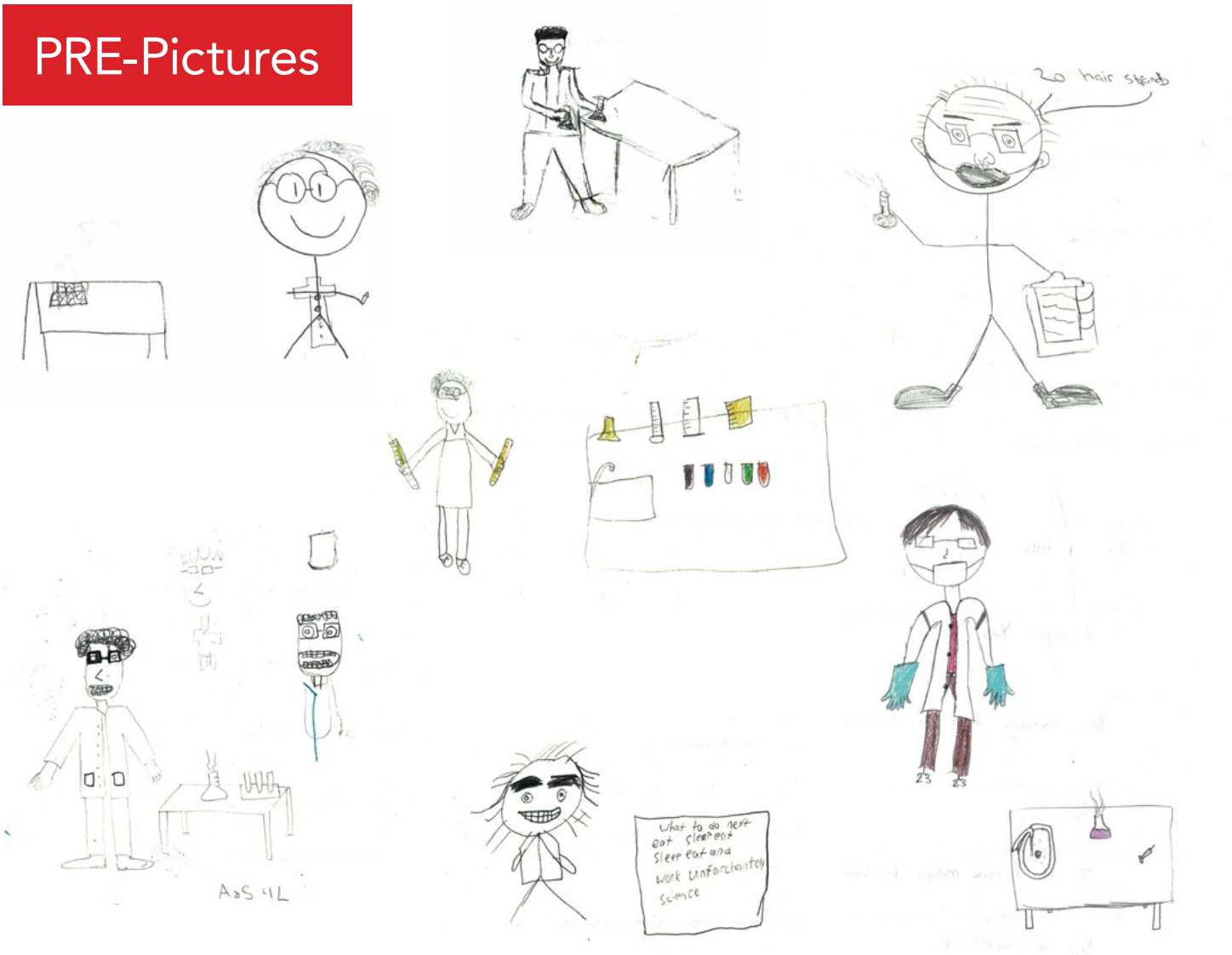


2. Data was collected through a survey of the volunteers in 2019-20 with a 38% response rate.

Changing the image of scientists amongst youth who have been marginalized

The San Romanoway Revitalization Association (SRRA), a social services organization located in an impoverished neighbourhood in the Jane and Finch region in Toronto, has partnered with Let's Talk Science since 2017 to bring engaging STEM programming to their Breakfast and After-School programs. Let's Talk Science regularly provides hands-on/minds-on programming for students in Kindergarten to Grade 12 throughout the year (often several times per week). Following participation in the program, students increasingly viewed themselves as scientists as shown by the images below. By the end of the year, when asked to "draw a scientist", young students frequently drew people of diverse racial and ethnic backgrounds and an equal mix of women and men.

PRE-Pictures



POST-Pictures

"My students loved being taught by other students. They were excited to have a role model to look up to who was teaching them something valuable."
- *Educator*

"It's been enjoyable to show youth that scientists aren't just stuffy old white men in lab coats. It makes the entire field more approachable."
- *Volunteer*

Spotlight on Science Learning (2014)

Shaping Tomorrow's Workforce: What do Canadian teens think about their futures?

While 56 per cent of students have some (34 per cent) or a lot (22 per cent) of interest in taking science at the post-secondary level, they are not taking the prerequisites in secondary school. Many students don't associate science courses with their own self-interest in furthering their general career prospects. Many students also don't take science because they don't want to "go into science". They don't recognize the transferability of 'STEM skills'.

Spotlight on Science Learning (2015)

Exploring Parental Influence: Shaping teen decisions regarding science education

Sixty-nine per cent of parents believe a stronger emphasis on STEM education is necessary to equip future generations with foundational skills, such as problem solving and critical thinking. Some 70 per cent of parents surveyed say it is important for children to have STEM education, even if they aren't currently interested in a job in those fields. Parents can be supportive by reinforcing that a STEM foundation is essential regardless of their child's current career interests. Sixty-seven per cent of parents agree that it's important for all children to participate in STEM education until the end of high school. However, only 28 per cent of parents often discuss with their children the value of taking optional science courses. Furthermore, 29 per cent of parents admit they rarely or never raise the subject of taking optional science.

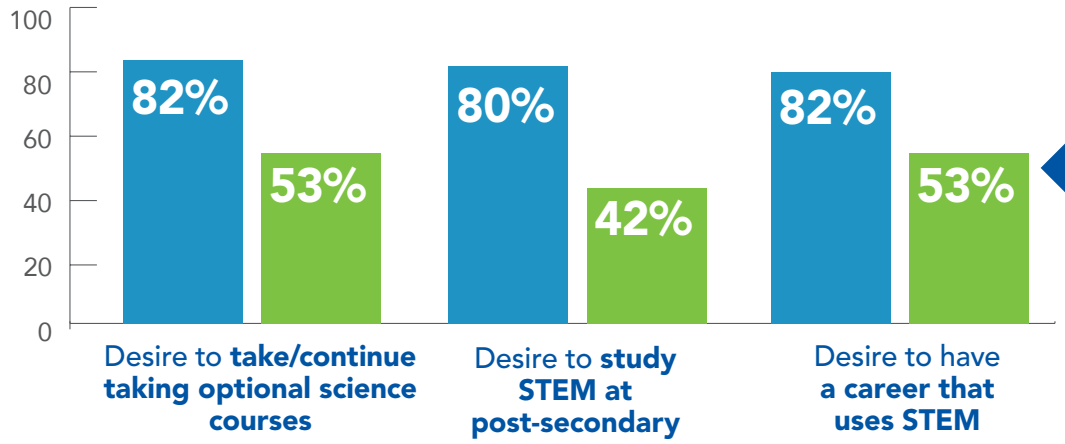
GOAL →

Increase desire to:

- ✔ take optional high school courses;
- ✔ study STEM at post-secondary;
- ✔ have a career in STEM.

Increase Desire

Percentage of student participants in the **Let's Talk Science Challenge (LTSC)** and **Let's Talk Science Outreach** program who indicated an **increase** in:

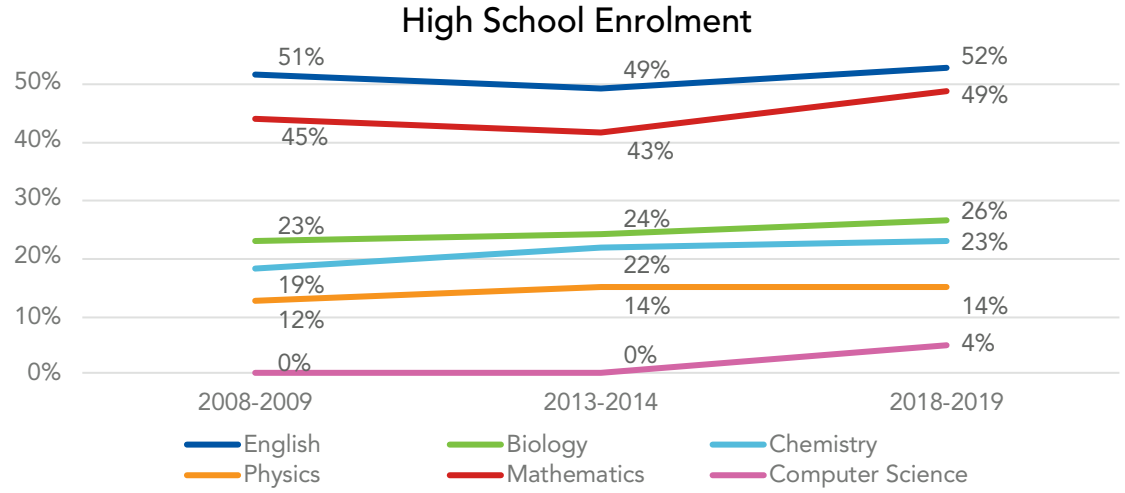


Let's Talk Science Outreach: Volunteers visit classrooms and community groups to engage kids in STEM activities.

Let's Talk Science Challenge (LTSC): In-depth program with activities and learning culminating with a Q&A competition and hands-on engineering design challenge

Increase enrolment in optional high school STEM courses

Participation in the tracked Grade 12 university-bound traditional STEM credits has not changed significantly. However, in parallel, more high school STEM courses have been introduced and are not included in this data.

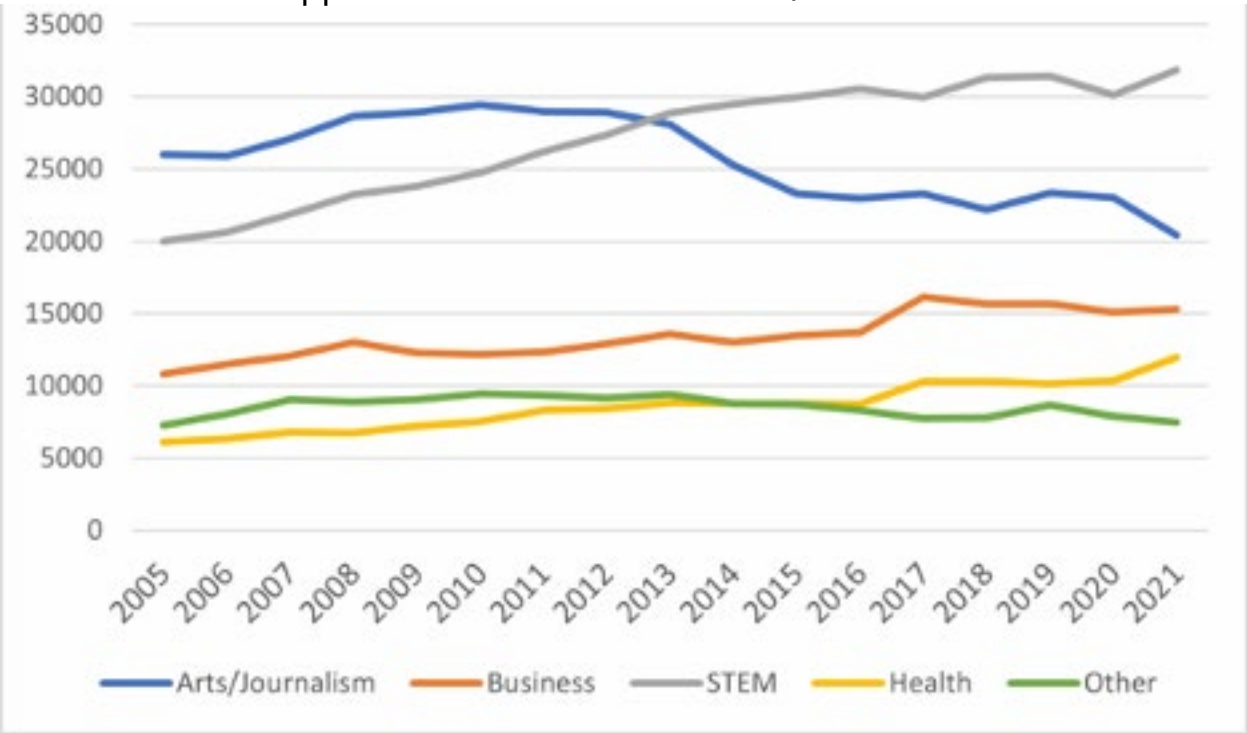


Data includes grade 12 enrolment for 5 provinces, BC, NL, ON, PE, SK.

Increase Enrolment in Post-Secondary STEM Programs

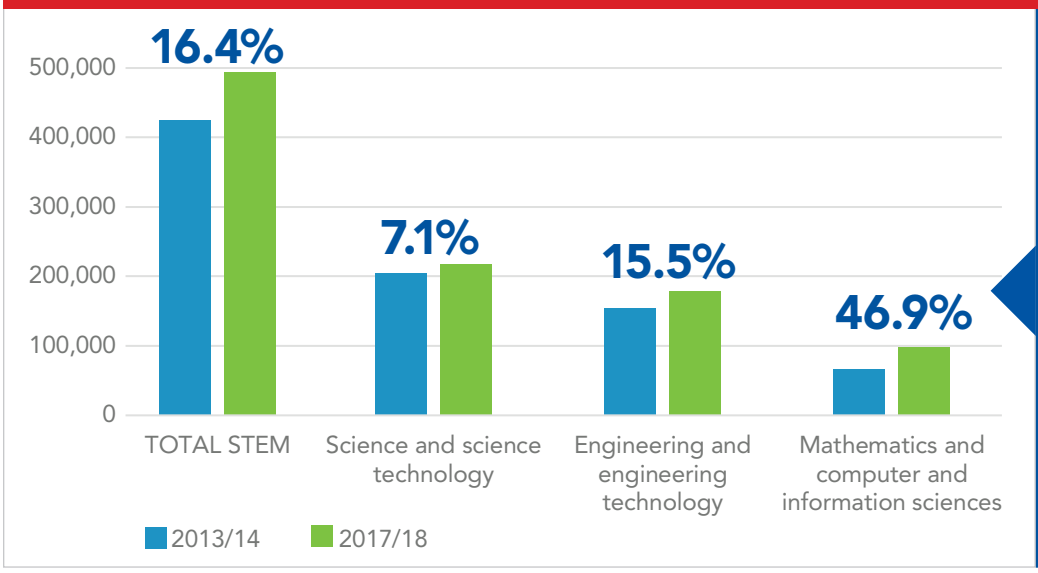
As shown by the following figure, there has been a steady rise in first-choice applications for STEM and Health programs at Ontario universities since 2005. Nationally, enrolment in post-secondary STEM programs has outpaced enrolment in business and the humanities.

First-Choice Applications by Broad Field of Study, Direct-from Secondary Applicants to Ontario Universities, 2005-2021



Higher Education Strategy Associates: Alex Usher (January 27, 2021)

Post-secondary STEM Enrolment - 2013/14 to 2017/18



During the same time period BHASE (Business, humanities, health, arts, social science, and education) enrolment decreased by **0.7%**

Statistics Canada: The Daily - Canadian postsecondary enrolments and graduates, 2017/2018

GOAL →

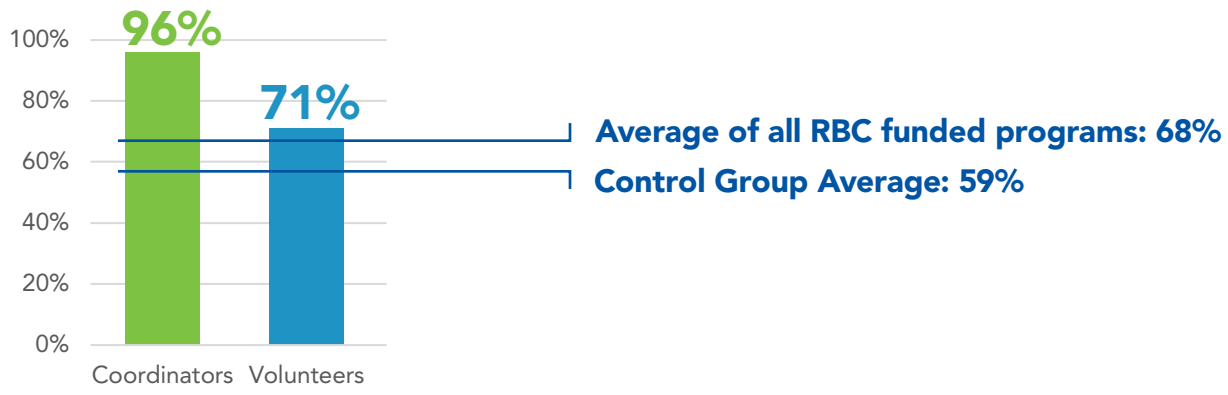
Increase career readiness skills of post-secondary students.

Let's Talk Science Volunteer Development

Post-secondary volunteers have access to professional development in a variety of topics including Leadership and Career Development and Indigenous Outreach training. In 2019-20, nearly 90 professional development sessions were offered, with over 2,500 volunteers participating.

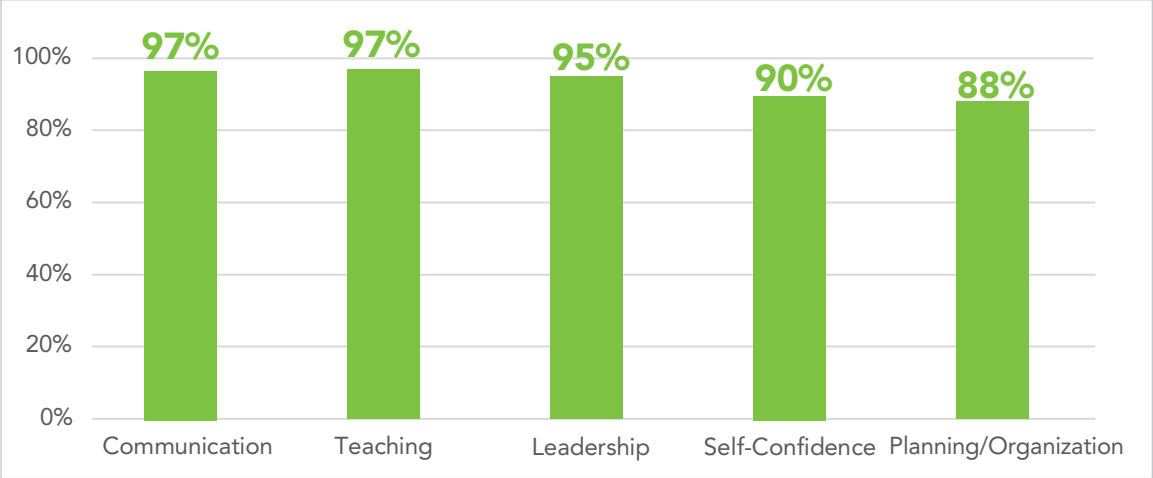
Volunteer Feedback

% of participants who indicated that they are more prepared for the workforce after the program/project participation.

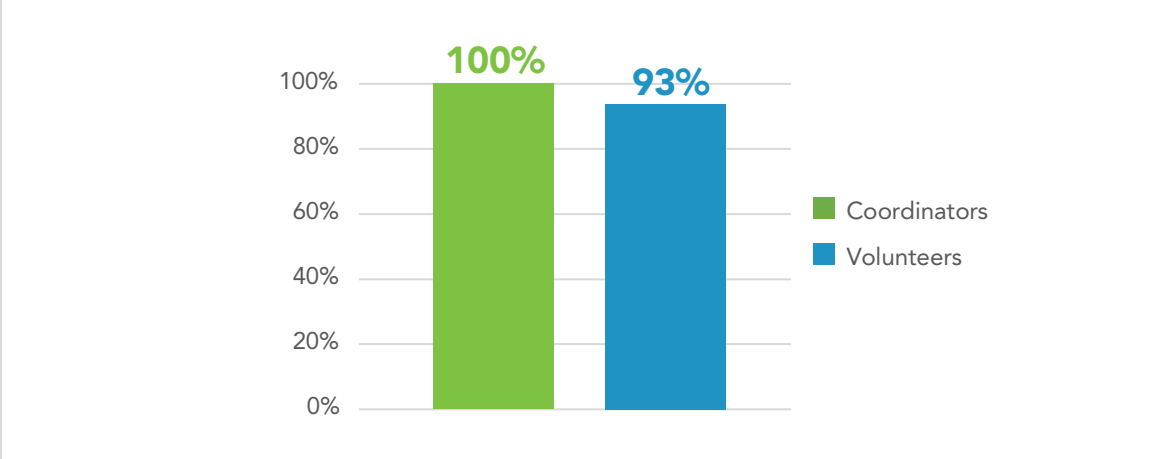


**RBC Future Launch is an initiative to help Canadian youth prepare for a drastically changing workforce. Through this initiative, RBC supports a number of programs, including Let's Talk Science Outreach. The graph shows responses from Let's Talk Science Outreach Coordinators and Let's Talk Science volunteers. Benchmark lines represent survey results from all programs funded by the RBC Future Launch as well as a control group survey conducted amongst Canadian youth in general.*

To what extent has volunteering with Let's Talk Science helped you develop the following skills and attributes?



I am confident that I can showcase my Let's Talk Science experience in future job application processes (CV, interviews) to help make me an attractive candidate.



Conclusion

It is increasingly important that youth develop critical transferable skills and an understanding of how the world of work is changing. Let's Talk Science offers a variety of programs and resources that are designed to raise youth interest in STEM, their intention to pursue STEM at post-secondary and build career-ready STEM skills. The impact results shared in this communique indicate that the organization is achieving its goals and it underscores the importance of engaging youth early and often with meaningful opportunities that can help them make good personal decisions about their own learning pathways and future careers.

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