Science Rendezvous: Innovation in Science Outreach for Canada

by Kelsey A. Miller

Science Rendezvous (SR) is Canada's largest STEM (science, technology, engineering, and math) festival, annually reaching over 300,000 Canadians across nearly every province and territory [1]. SR is a collaborative outreach model that has grown from 4 university partners in 2008, to 300 simultaneous events in partnership with 135 research institutes, universities and community groups, supported by 6,000 volunteers in 2016. By providing a framework for collaboration that effectively pools the resources of all parties, SR is able to produce an outreach event of greater size and scope than any one organization can accomplish independently.

Activities vary between event sites depending on the specializations of the hosting institution. However, the core program components remain consistent: Science Carnival, INVENTours, Science Chase, Canada-Wide Experiment, and Northern and Aboriginal Science Program. The "Science Carnival" is an outdoor festival that includes large-scale installations and departmental pavilions where scientists display their research through hands-on activities and interactive exhibits (Fig. 1). This part of the SR festival offers direct involvement with world-class science, and the actual scientists doing it, making the event a unique experience for participants of all ages.

"INVENTours" opens the doors to over $5B of premier laboratories providing unprecedented public access to the specialized facilities that are driving scientific discovery in Canada. INVENTours places participants directly in the research setting. Scientists offer tours of their labs and research facilities detailing the research conducted, and the tools used to take ideas to discovery. This behind the scenes look into a career in science is a crucial first step in enabling a child to imagine themselves in that role, and begin thinking of themselves as future scientists [2-4]. "The most important aspect of the event is that it breaks down the

Fig. 1 Learning together under the big tent of the Science Rendezvous festival.

Summary

Science Rendezvous brings the public face-to-face with scientists through innovative outreach strategies that provide interactive experiences of the research taking place in Canada.

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barriers to science and shows the community that the field doesn't have to be intimidating, and helps them believe that a career in science is possible for them", says Julia Piché, scientist volunteer at SR University of Winnipeg.

The "Science Chase" is based on the television series The Amazing Race, and is designed to engage a sports-focused audience. Science Chase is a competition that motivates and directs participants to engage with scientific concepts through a series of problem solving "challenges". These challenges teach about different areas of science (the body, solar system, chemistry, physics, etc.) in an obstacle course format. Participant survey results show over 50% of 2015 Science Chase attendees had not previously attended any science outreach activity, indicating the importance of this kind of innovative strategy to increase new audience engagement with STEM.

In 2017 the Canada-Wide Experiment will take the form of self-contained experimental kits that allow youth and teachers to study water quality across Canada. The Canada-Wide Experiment actively engages participants in all aspects of the scientific process. Environmental sensors included will measure water temperature, pH, VOCs (volatile organic chemicals), and heavy metals. The kits will travel across the country as a mobile laboratory, allowing participants to track and compare results. This program brings the entire country together in a unified project, establishing an inclusive scientific community across vast distance.

The Northern & Aboriginal Science Program operates in close partnership with local elders and community leaders, creating a knowledge exchange wherein scientists travel to remote access and Aboriginal communities to work with elders and teachers in developing locally relevant experiments that will inspire curiosity in STEM fields. These "Travelling Scientists" bring with them resources and materials to coordinate a local SR event as part of the national initiative, and facilitate participation in the Canada-Wide Experiment, thereby bringing the SR festival experience to communities that would otherwise not be able to participate. This kind of direct engagement with scientists is the most important aspect to effective science outreach, and the core component of all SR activities.

In addition to tracking the number of event attendees, SR has disseminated a participant Impact Survey since 2014 [4]. This survey is used to determine specific event engagement and impact. In 2016, 85% of respondents found SR "Quite Educational" or "Very Educational", 89% of participants found it "Quite Enjoyable" or "Very Enjoyable" (for reference, choices included "Not at all", "Slightly", "Somewhat", "Quite" and "Very"). Attendees were also questioned on how the event compared to their local Science Centre, with more than 92% stating that it was "as good" or "better", indicating the power of a free science festival to successfully attract and engage participants. As one enthusiastic respondent noted, "Your event did more than my efforts or years of "Mad Science" classes or Science Centre membership did…The demos were great, but even better were the volunteers who shared their passion in such an effective way with my daughter (and me)." Further results of the survey included that 62% were first time attendees and 87% of attendees intend to return next year, both of which indicate potential for future growth.

SR acts as a lightning rod of excitement that works alongside our partner organizations' outreach activities, such as visiting scientist programs and clubs that sustain the scientific curiosity reinvigorated by SR. A broad range of outreach strategies, and collaboration among practitioners is crucial to establishing new audiences and inspiring the next generation of researchers and innovators [5]. The importance of the SR outreach model to the perception of science in Canada is now being recognized by the Natural Sciences and Engineering Research Council of Canada (NSERC), which has designated SR as the marquee event of its 10-day campaign known as Science Odyssey [6].

New and innovative methods of science outreach are necessary to access the best and brightest in Canada. This is what SR offers, constant reimagining of science outreach strategies, based on real science and current research taking place in Canada. There is no substitute for the impact real scientists can make as role models to the next generation. There is no one else who can communicate the genuine excitement of scientific enquiry than those actively involved on a daily basis. SR provides an important platform for public engagement with these thought leaders on a vast scale.

REFERENCES

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