

Operation Minerva Calgary - Over 30 years of Success in STEM Advocacy

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Summary

Operation Minerva Calgary has been supporting STEM advocacy for over 30 years, designed to provide grade 8 girls with hands-on experience in science, technology, engineering and math (STEM) workplaces across Calgary. To date, the program has paired over 3000 grade 8 girls with female STEM professionals through a 1-day job shadowing experiences.

OM seeks to maintain, foster and promote interest in STEM paths by encouraging female students to continue their science studies in high school, university, and as a career choice. Operation Minerva's focus is placed on Grade 8 girls because studies show that this is the age when they will lose interest and confidence in STEM due to societal pressures and perceived gender norms (MacDonald, 2006). After participating in Operation Minerva, an increased number of girls choose to pursue post-secondary education with further studies or even careers in STEM (MacDonald, 2006). The program now has mentors who were once participants.

For one day, the participants meet peers from all across the city and job shadow women in their STEM workplace. This is a unique opportunity as it does not rely on students having a connection to someone in the workplace (e.g. Bring Your Kid to Work Day). Additionally, the program immerses youth into the workplace instead of bringing a speaker into the classroom, which enables interaction with a wide network of both of their peers and also female STEM mentors.

With increasingly complex, global STEM challenges due to environmental and economic demands, it is necessary to have a growing collaborative STEM community to solve our future issues. By communities supporting Operation Minerva as Mentor-Companies or as sponsors, we are not just encouraging students to pursue STEM but are actively investing and developing our future problem-solvers. Encouraging female participation in these high-demand fields means we are investing in our collective future.

In 2018 AWSN (The Alberta Women's Science Program) was awarded an NSERC grant to expand the program to include a different delivery model. In 2019, AWSN kicked off a pilot project for this expansion. The expansion has paired two at-risk classrooms with three one-day job shadowing experiences throughout the school year, allowing the participants to have three different STEM experiences. This presentation will discuss lessons learned in 30 years and through the current NSERC grant and will include strategies that can be applied to other long term STEM retention efforts.

Theory / Method / Workflow

In both 2006 and through the current NSERC granting, participants are asked questions on their enthusiasm towards STEM education and career choices before and after the job shadowing. The presentation will discuss the results.

Results, Observations, Conclusions

Participants have indicated that this yearly event leaves them feeling inspired to lead a career in the STEM industries and that they become aware of the many opportunities available to them. The vision for the program is to broaden its reach and support at-risk areas of the city.

Novel/Additive Information

In 2019 AWSN created a partnership with Telus Spark to expand the Operation Minerva going forward. AWSN will continue to lead the pilot expansion, through the NSERC grant, but looks forward to watching the original program's expansion under the leadership of Telus Spark.

Acknowledgements

Thank you to NSERC for the three year grant funding, and current OM corporate sponsors: Wood PLC and Hillberg & Berk.

Also, thank you for over 30 years of volunteer commitments from the Operation Minerva teacher committee, STEM mentors and STEM companies.

References

MacDonald, Terri L. 2006. "Operation Minerva: A Project that Attracts and Retains Girls in Science." In *Coming of Age: 100 years of Educating Alberta Girls and Women*, ed. E.Lisbeth Donaldson, 143-152. Calgary Alberta: Detselig Enterprise Ltd.