Future Skills Centre | Centre des Compétences futures

Project Insights Report

Harnessing the digital economy for women of colour in Canadian undergraduate STEM programs

PARTNERS
Ontario Tech University

LOCATIONS
Across Canada

INVESTMENT
$29,720

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Executive Summary

A large percentage of people from diverse groups recruited into STEM undergraduate programs do not complete a STEM degree. This project conducted a systematic literature review exploring current research about retention efforts for women of colour in post-secondary STEM programs. The findings included that there is not enough data about women of colour in post-secondary STEM programs to draw firm conclusions about the success or failure of strategies to retain them. These findings are relevant for educational institutions and faculty in STEM that are aiming to increase the diversity of their students.

KEY INSIGHTS

1. There is a need for more qualitative data to understand experiences and quantitative data to understand overall trends for women of colour in STEM programs.
2. Strength-based interventions that explicitly value the background and experiences of the students and build a sense of belonging support retention.
3. Post-secondary institutions should tie efforts focused on women of colour in STEM to broader institutional efforts to improve equity, diversity, and inclusion.

The Issue

It is well known that Canada has a lack of diversity in science, technology, engineering and math (STEM), with women of colour being one of the most underrepresented groups. Many efforts to diversify STEM fields have focused on recruitment, however research shows that a large percentage of people from diverse groups recruited into STEM undergraduate programs do not complete a STEM degree. Not enough is known about how to support people from diverse groups, like women of colour, to stay and persist in STEM degrees. Despite this, research suggests that strength-based approaches and deliberate efforts to build a sense of belonging help women of colour complete and thrive in STEM education and training.

What We Investigated

This project explored current research about retention efforts for women of colour in post-secondary STEM programs. The project was guided by three questions:

- What institutional, faculty, and personal strategies support women of colour towards completing their undergraduate STEM degrees?
- What is the state of support within the field for women of colour towards completing their undergraduate STEM degrees in Canada? What are the gaps in Canadian research in this area? What should the research priorities be to support Canadian retention efforts?
- How is the digital economy being leveraged in these strategies and efforts of retention?

The project conducted a systematic literature review and synthesized findings.

What We're Learning

Better data collection needed on women of colour in STEM
There is a significant gap in Canadian data on the retention of underrepresented groups in STEM, including women of colour. There is a need for more qualitative data to understand experiences and quantitative data to understand overall trends. This is not surprising given the lack of retention data across Canadian post-secondary institutions in general.

Strength-based approaches help women of colour complete and thrive in STEM education and training
Strength-based programs included efforts to foster a strong sense of identity, for example through mentorship, integration of cultural and racial identities into curriculum and sources cited and seeking out staff representative of the students. Strength-based interventions are inclusive and empowering because they explicitly value the background and experiences of the students.

Fostering a sense of belonging supports success
Women of colour in STEM often face gender and racial bias and discrimination, which can lead to feelings of isolation, imposter syndrome, and disconnectedness from their academic communities. Developing inclusive cultural norms and institutional supports that build and reinforce a sense of belonging is imperative for creating the environments students need to persevere in their programs. Promising strategies to improve the sense of belonging in STEM include providing dedicated space for underrepresented groups on campus and ensuring faculty are culturally competent in ways relevant to the students they teach.

Why It Matters

The findings of this project are relevant for educational institutions and faculty in STEM that are aiming to increase the diversity of their students. Strategies are needed to improve student retention and support for them to complete STEM degrees, in addition to ongoing efforts on access and recruitment. Regardless of the tactics chosen, each educational institution should tie specific efforts to broader institutional efforts to improve equity, diversity, and inclusion.

State of Skills:
Enhancing Career Prospects and Well-Being for Canadian Youth

To stem the recent downturn in labour market conditions of youth and to lay the groundwork for them to play a pivotal role in fostering growth and inclusion, it is imperative to address and dismantle the multiple and intersectional barriers they encounter.

Read Thematic Report

Have questions about our work? Do you need access to a report in English or French? Please contact communications@fsc-ccf.ca.

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