Open Education:
Improving access and fostering change

FEBRUARY, 2021

BCcampus
Learning. Doing. Leading.

We aim to provide flexible, affordable access to post-secondary learning in B.C. through open educational resources (OER) and open educational practices (OEP).

Since 2012, the Ministry of Advanced Education and Skills Training has funded B.C. open education initiatives and tasked BCcampus with managing them. Why? **OER makes education more accessible by reducing costs to students and mitigating the financial burden of post-secondary education.**

OER are teaching, learning, and research resources that are available for post-secondary institutions to use, distribute, keep, or make changes to.

Open textbooks are freely available, accessed online or through shareable formats by anyone: students, instructors, librarians, and the public. In general, they can be modified, printed, shared, retained, remixed, and reused.

The following information highlights the significant increase in OER development, student savings, and advocacy between 2019–2021, thanks to funding from the Ministry of Advanced Education and Skills Training of $3.26 million in 2019.

OER can:

- Increase access to education
- Allow students to assess and plan their education choices
- Showcase an institution's intellectual outputs, promote its profile, and attract students
- Convert potential students into fee-paying enrollments
- Accelerate learning by providing educational resources for just-in-time, direct, informal use
- Add value to knowledge production
- Reduce faculty preparation time
- Generate cost savings, particularly with open textbooks
- Enhance quality
- Generate innovation through collaboration

Over the last two years we have seen a significant increase from February 2019 to February 2021

Number of B.C. students using open textbooks

2019
104,797
2021
198,109

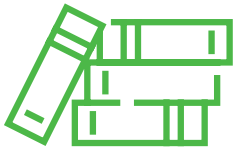
Number of known B.C. faculty adopting

2019
521
2021
677

Millions of dollars in student savings

2019
$10.3m
2021
$23.8m

Number of known B.C. adoptions



2019
2668
2021
4525

By the numbers

Projects funded and managed	71
Subject Areas	43
Zero-textbook-cost (ZTC) programs funded	4
Initial investment	$3m
Savings in course materials	x2

Projects, May 2019 to March 2021

Project: Trades

Objective: Develop freely available resources, including textbooks, test banks, homework assignments, and other ancillary resources, to replace costly commercial educational resources.

INVESTMENT: $500,000

15 projects

14 open textbooks

Seven trades

One VR/AR simulation

Seven institutions

Collaborations with Trades Training BC and Industry Training Authority

Project: Health

Objective: Eliminate textbook and learning resource costs throughout entire programs of study in health.

INVESTMENT: $400,000

17 projects

Two subject areas

Six institutions

Five open textbooks

Six open skills videos

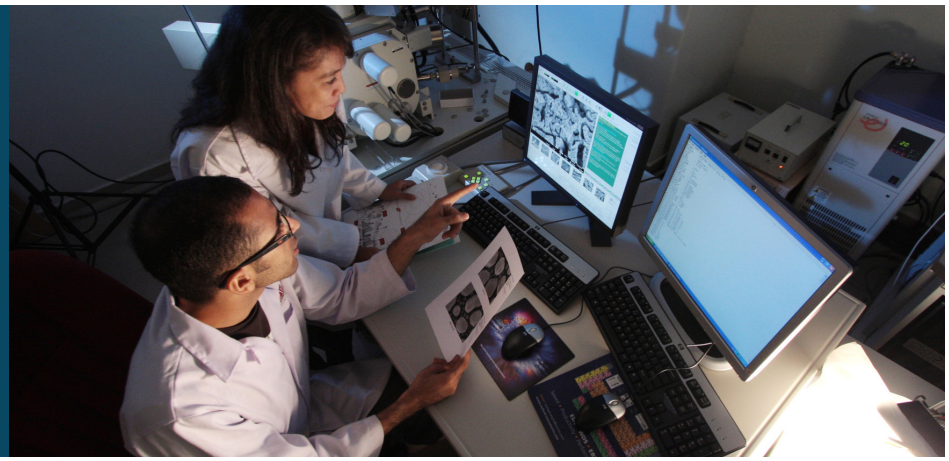
Four virtual simulations in H5P

Two OER evaluations

Project: Science, Technology, Engineering, Math (STEM)

Objective: Eliminate textbook and learning resource costs throughout entire programs of study in STEM.

INVESTMENT: $200,000



Eight projects

12 subject areas

12 institutions

Three open textbooks

1000 open homework problems

One environmental scan

One resource directory

Three ZTC programs

First ZTC programs in STEM in B.C.

- ZTC pathway developed for associate of science
- ZTC program in development at Thompson Rivers University for the associate of science
- ZTC available at Vancouver Community College in short certificate in drafting

Project: Business

Eliminate textbook and learning resource costs throughout entire programs of study in business.

INVESTMENT: $200,000

14 projects

10 subject areas

14 institutions

Four open textbooks

One question bank

Eight open online courses

One ZTC program

First ZTC program in business in B.C.

- ZTC in development at Douglas College for the general business certificate

Project: Regional Representatives

Objective: Create a collaborative relationship with smaller institutions in the Northern and Interior regions of B.C., establish an open education network/infrastructure for smaller institutions, and build up capacity for open education.

INVESTMENT: $450,000

2 Hired two regional representatives to work with Northern and Interior institutions to improve adoption through activities specific to the institutional needs

34 OER creations across Northern and Interior institutions

58 USB drives distributed, preloaded with offline OER

Funded:

- Two foundation grants
- One sustainability grant
- Three research fellows
- Four time-investment grants

$300,000

Students savings in Northern institutions

$450,000

Student savings in Interior institutions

Project: Return on Investment Research

Objective: Establish evidence-based qualitative and quantitative data and analysis to support the value of OER.

INVESTMENT: $200,000

How do ZTC institutions advance and sustain their efforts in OEP?

Collaborative research examined how five B.C. post-secondary institutions (UBC, TRU, JIBC, KPU, RRU) have achieved momentum with openness and are sustaining their efforts to see whether an institutional self-assessment tool adapted from blended learning and institutional transformation helps measure an institution's progress toward OER adoption.

Institutions in this study advance and sustain their efforts through both top-down and bottom-up activities. Four intersecting components — advocacy, policy, leadership, and institutional culture — emerged as important in advancing their OEP initiatives.

One article

One self-assessment tool

One website

Five presentations at global conferences

Project: Open Homework Systems

Objective: Replace high-use, high-cost commercial homework systems with open source alternatives.

INVESTMENT: $700,000

12 projects

12 subject areas

14 institutions

Two reports

One accessibility review

For several years commercial publishers have been marketing online tools to faculty that provide curriculum to students, including textbooks, ancillary resources, and homework systems. Homework systems can impose a significant financial burden on students.

One subject area with 1791 students will cost students $140,000 in a single term.

Three Open Homework Systems available:

WeBWorK (STEM)

- In use at 13 institutions
- Developed 98 WeBWorK open homework questions

Carnap (Philosophy)

- Canadian-hosted language logic homework system

H5P (All fields)

- Interactive, media-rich web content that works seamlessly in platforms
- Created +1300 H5P homework activities that align with 10 open textbooks

Development of Mattermost community of 52 people based on the BCcampus-supported OpenETC infrastructure

Project: Teaching and Learning Capacity Building

Objective: Improve teaching and learning practices through the use and development of OER.

INVESTMENT: $50,000

128 Participants in the Open Ed Challenge Series hosted in collaboration with 18 institutions

110 Registrants for the Trades Summit Series

127 Nursing faculty from 19 schools across B.C. and Canada participated in a Pivot to Online for Nursing webinar

80 Participants attended the Pivot Online for STEM Educators webinar

9 Webinar and conference presentations (attended by 600+ people) for Open Homework Systems project

16 Published articles (4300 unique views) for Open Homework Systems project

20 Regional representatives hosted 20 presentations/ workshops across nine institutions

4 Hosted four Open Research Series with 344 registrants across 26 institutions

Project: Improved Findability

Objective: Increase opportunities for instructors to find relevant OER and integrate it into their courses.

INVESTMENT: $300,000

Why?

Many educators are interested in adopting open textbooks and other OER; however, when they try to find appropriate curriculum for their courses, they do not know where to look or become lost in huge repositories and end up going with a commercial publisher because it is simply easier.

Open Online Course Website developed:

- Improved search function to provide more relevant and complete results
- Improved metadata for more refined searching, relevant results, and access to collection outside of BCcampus.ca
- User research on site behaviours and experienced barriers in current site
- Metadata analysis and recommendations for improving findability of resources by search engines (e.g. Google), libraries (e.g. MARC records), and resources catalogs (e.g. WorldCat)
- Introduced ability to connect open textbooks to online courses for improved findability and relevance to BC educators
- New architecture for storing and referencing textbooks to reduce maintenance of duplicate materials and improve confidence that users finding the most up-to-date versions of textbooks