



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Faculty of Science

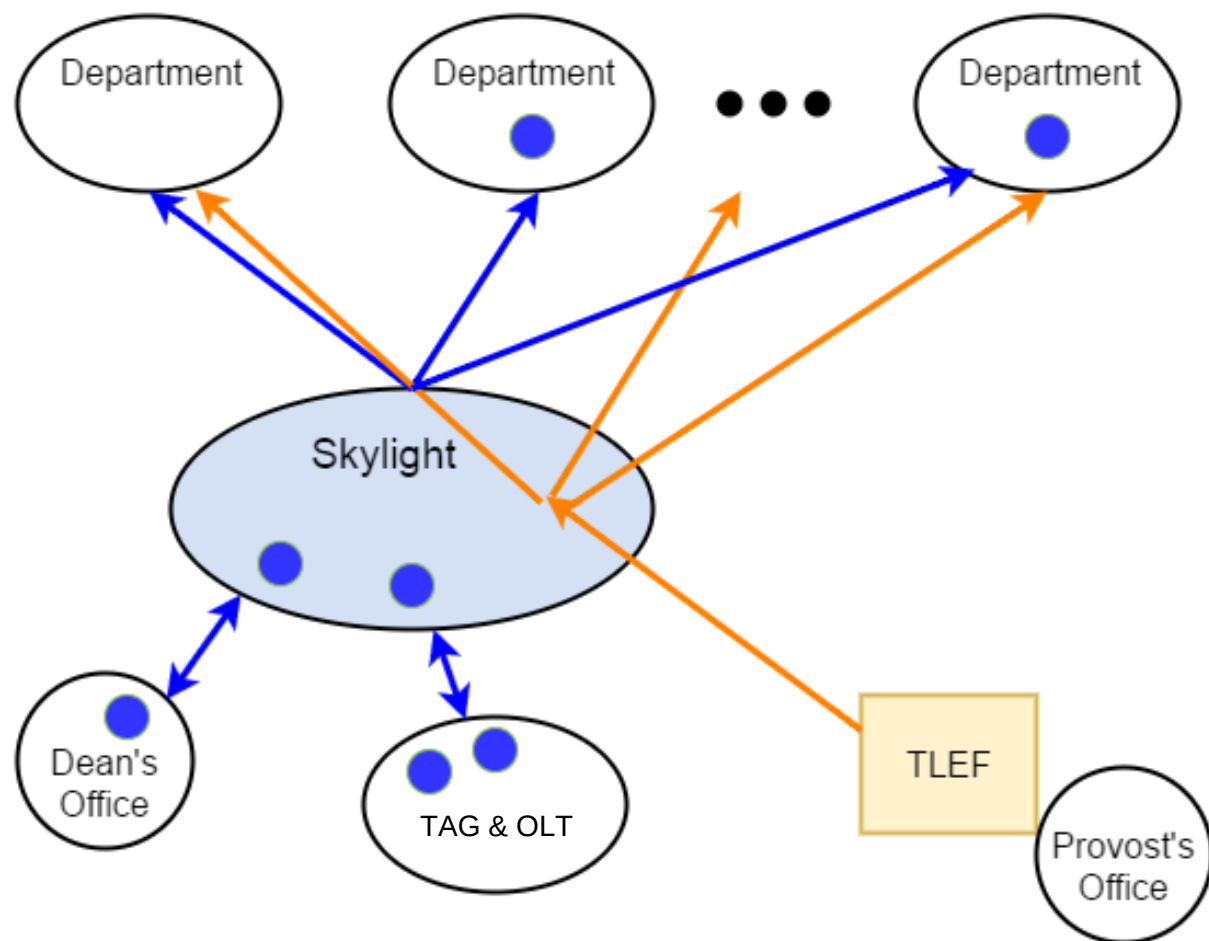
Science Education Open House

April 11, 2016

science.ubc.ca



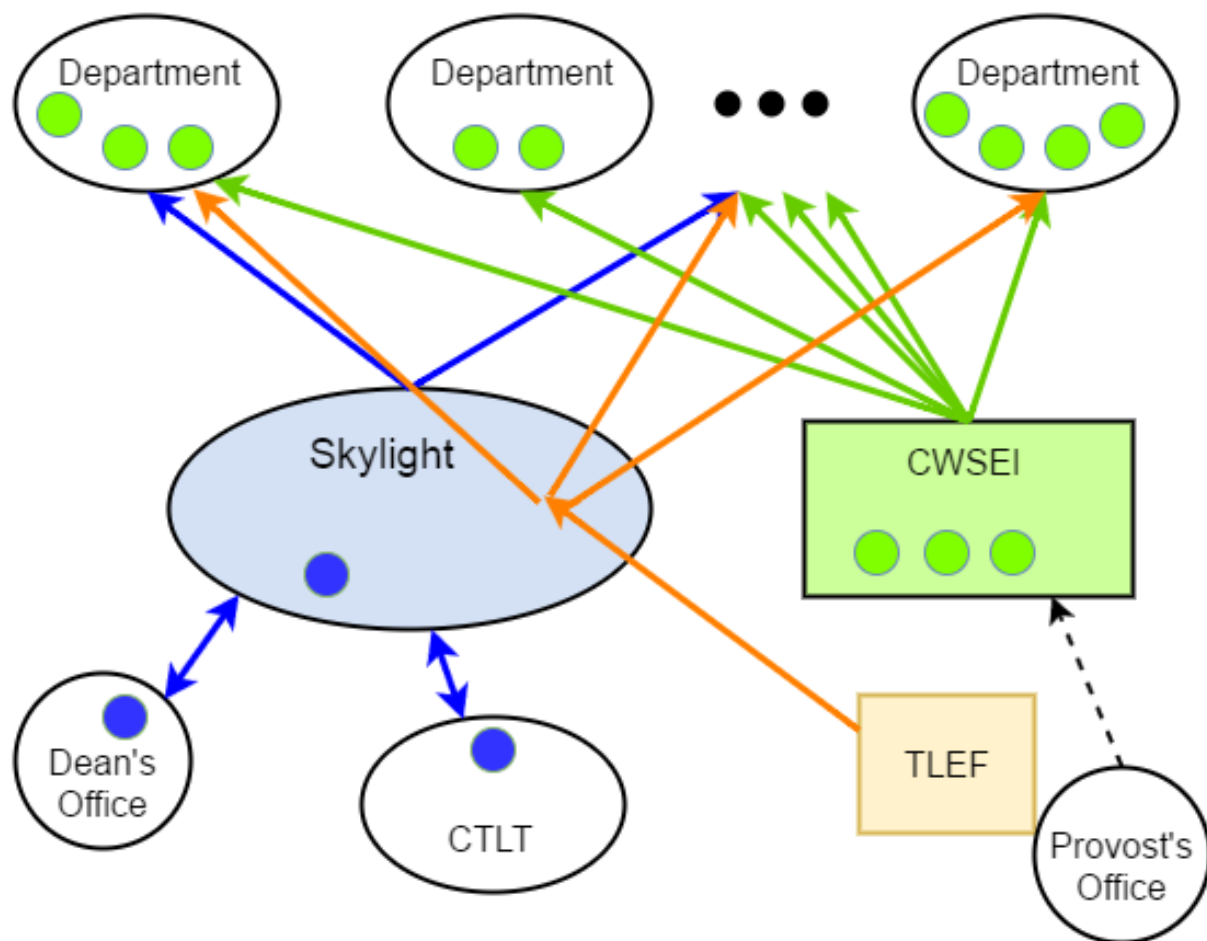
Evolution of Teaching and Learning Initiatives in the Faculty of Science



2006

Skylight with
Associates program

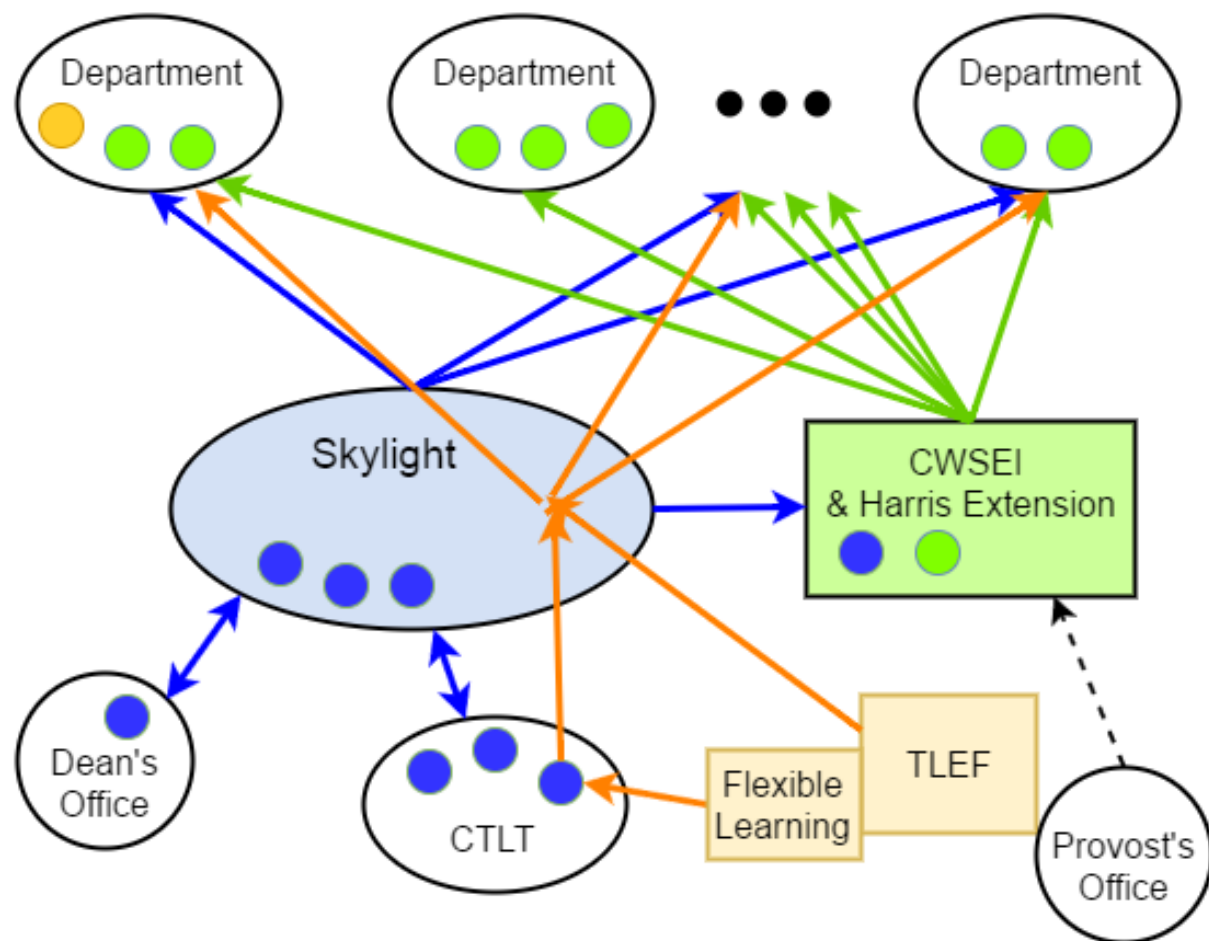
● Skylight



2012

CWSEI in full swing

-  CWSEI
-  Skylight



2014

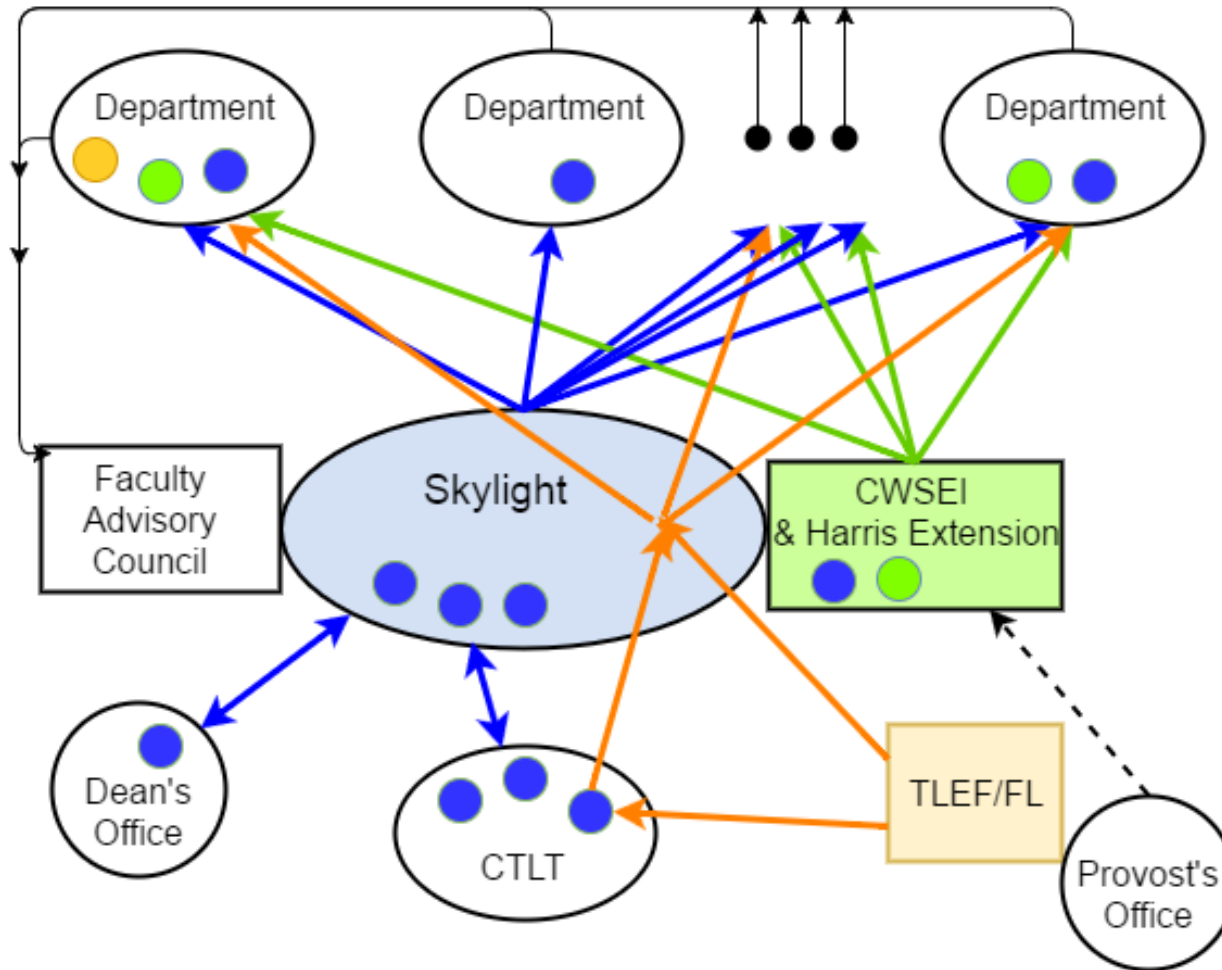
Skylight connects with
CWSEI;
Harris Extension &
Flexible Learning
Initiative underway

- TLEF
- CWSEI
- Skylight



Post CWSEI

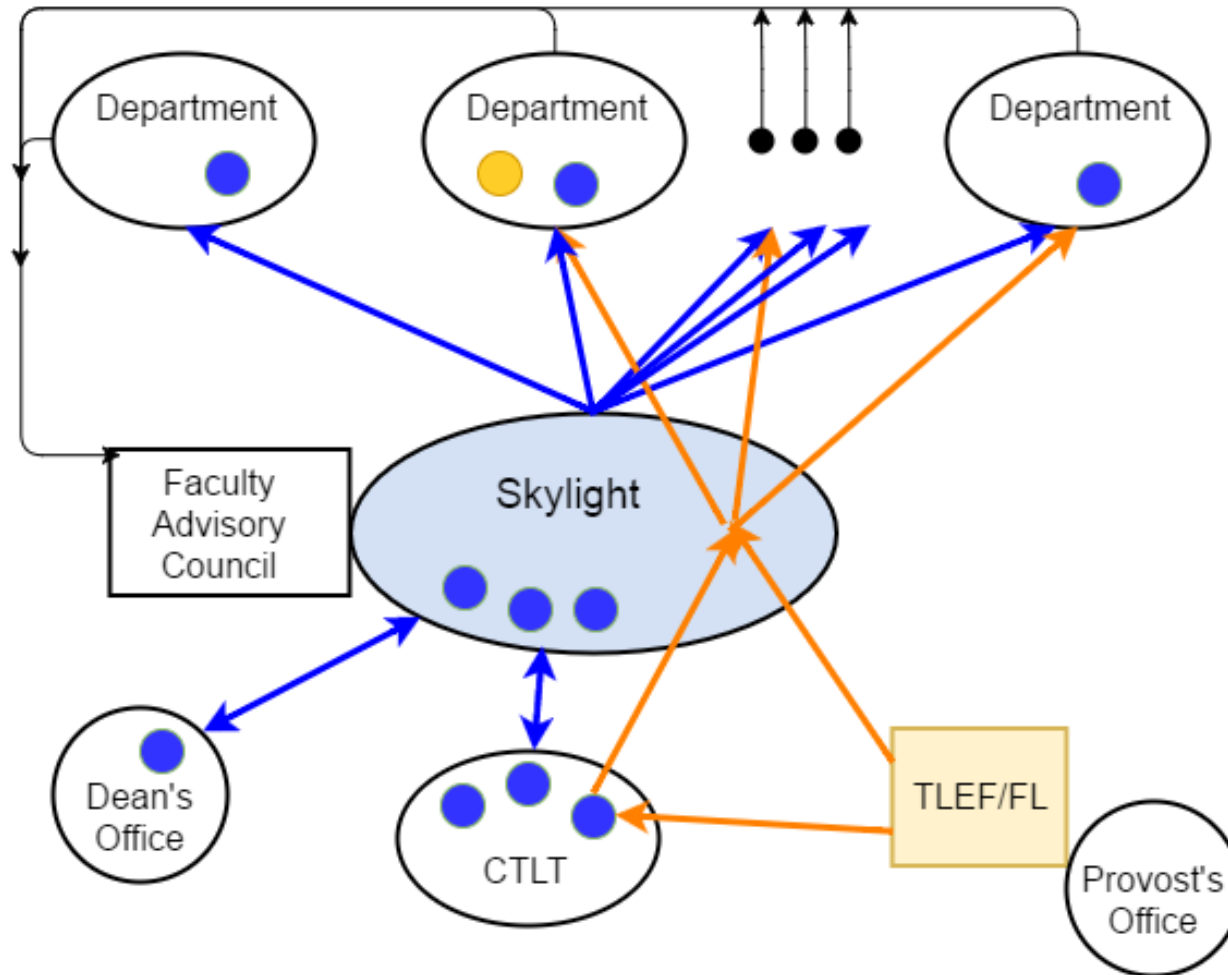
- March 2017 official end date
- Substantial recurring commitment from the Dean
 - Faculty Advisory Council
 - Departmental Plans and Priorities
 - Embedded Experts in Departments
 - Dept. budget: e.g., Course-buy-out, RA, travel support



Transition: 2016-2017

Faculty Advisory
Council in place;
New department-level
program begins;
CWSEI activity in a
few departments

- TLEF
- CWSEI
- Skylight



2018 & beyond

CWSEI and extensions
complete

● TLEF

● Skylight



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Faculty of Science

Skylight Science Centre For Learning and Teaching



Who we are



Top: Ian Cavers, Gülnur Birol, Warren Code, Noureddine Elouazizi, Gillian Gerhard
Middle: Kalev Hunt, Alice Campbell, Alena Proskuryakova, Eric Jandciu
Bottom: Tina Deng, Dorothy Mung and Lisa Liang



What we do

- Grants
- Course Design, Pedagogy, Evaluation, Curriculum Revision, Learning Technology
- Science Education Research and Dissemination
- Learning Technology Ecosystem
- Special T&L Initiatives
- Communities
- Partnerships/Collaborations on Projects



Partnerships/Collaborations:

e.g., Science Communication Resources



Eric Jandciu
Strategist

- Science Writing Resources for Learning (scwrl.ubc.ca)
>100 science writing resources for both students and educators
- Writing Across the Curriculum (scwrl.ubc.ca/wac)
Workshops, community of practice, one-on-one consultations for faculty and TAs



Teaching and Learning Enhancement Funds



Gillian Gerhard (Skylight and CTLT)
Strategist and FoS Liaison



Hailan Chen (CTLT)
Instructional Designer



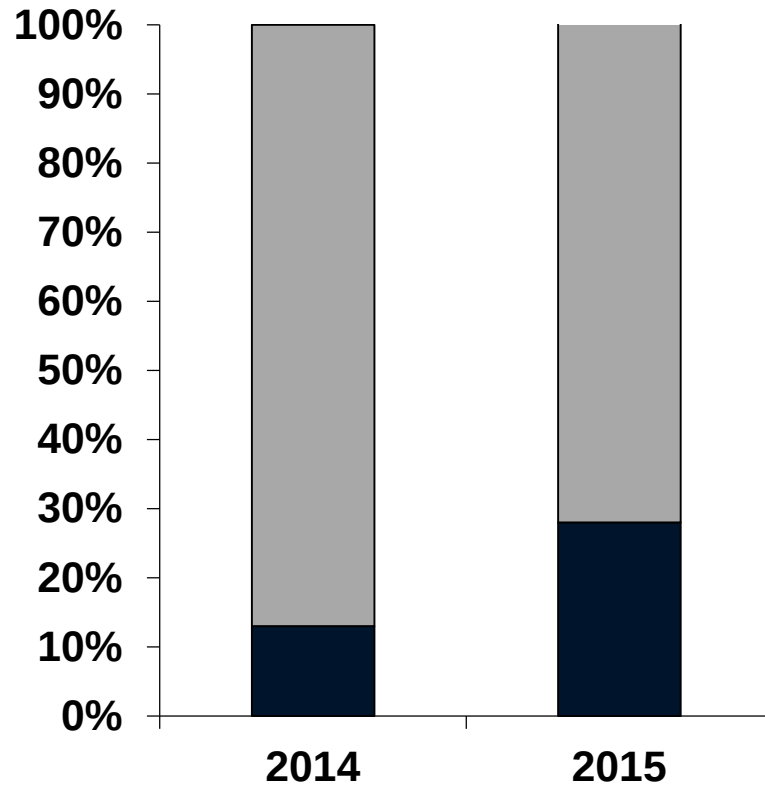
FoS TLEFs since 2013

- ~\$2.3M in total for large and small FoS TLEFs
- Impacting 8,000-10,000 students/year
- FoS has the largest enrolment courses transformed through FL/Large TLEF funding
- Development of a wide range of teaching resources
- Pedagogical innovations
- Evaluation

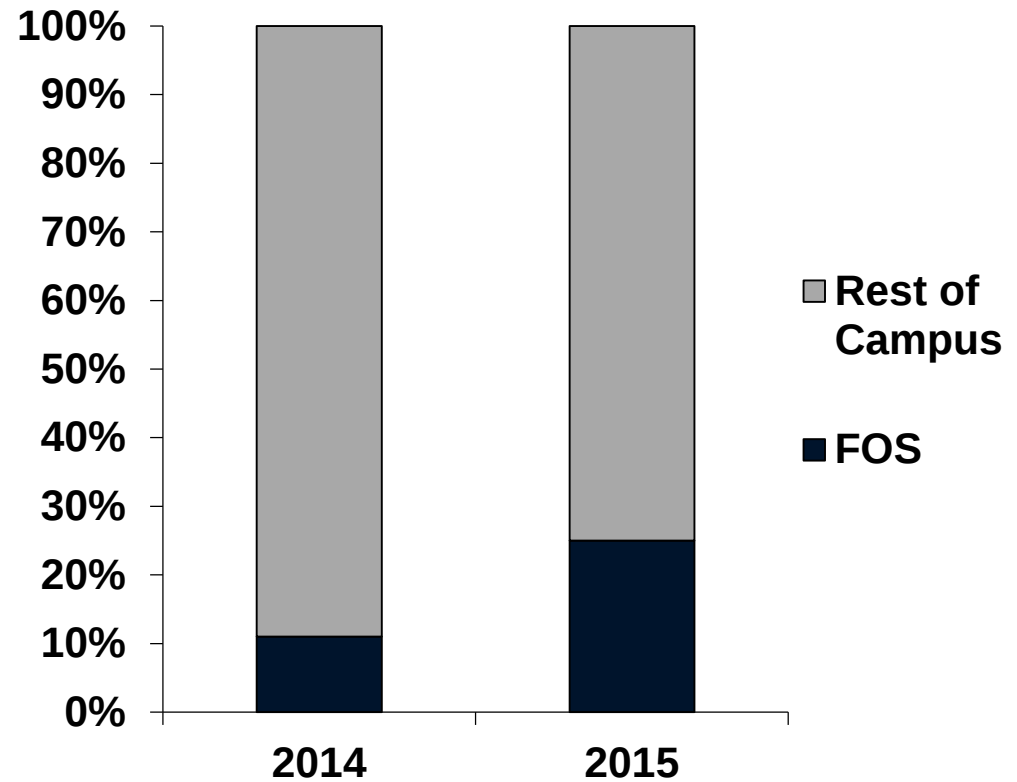


Proportion of Total TLEF Projects: Funding Awarded to the FoS

Large TLEFs

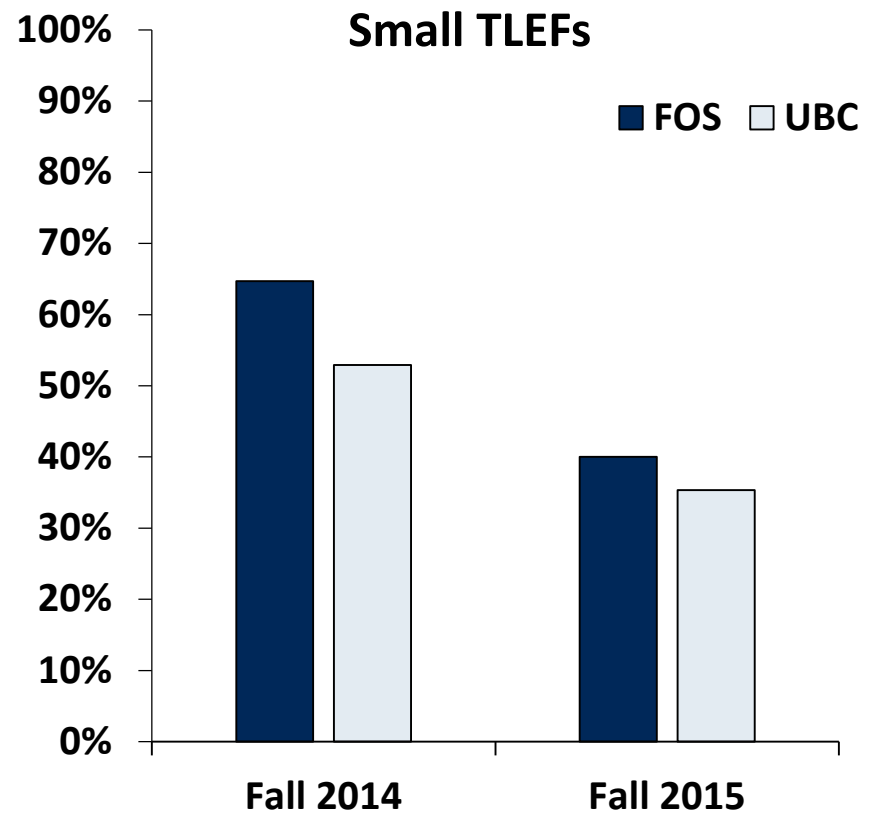
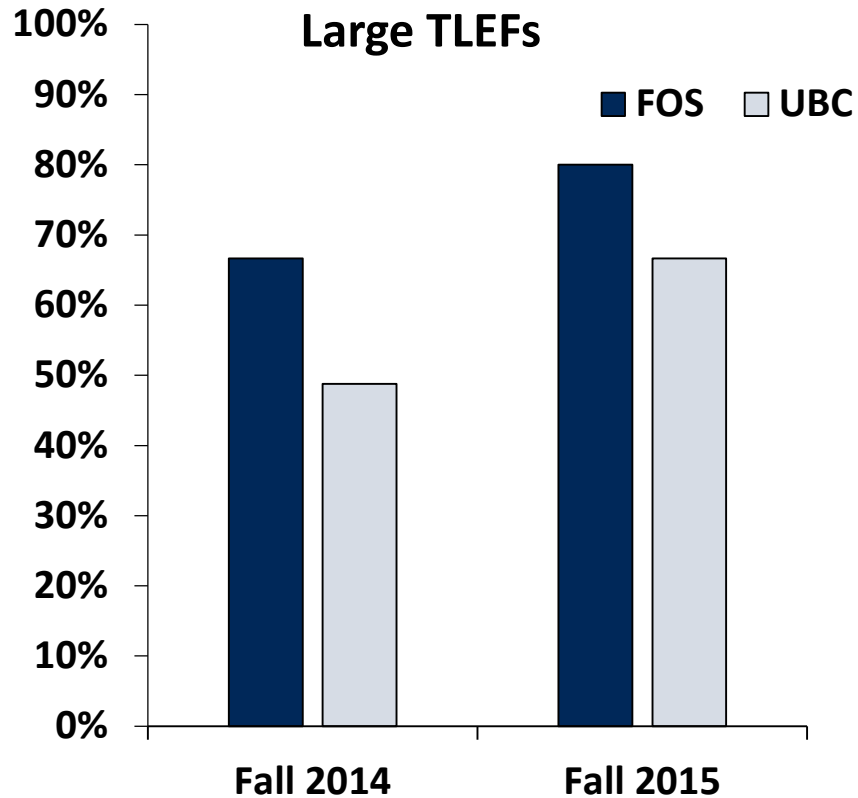


Small TLEFs





Success Rates



Of the total large FoS proposals submitted:

- 94% of those who sought Skylight support got funded
- 0% of those who did not seek Skylight support got funded

Course Revision & Evaluation

e.g., SCIE 113:



Alice Campbell
Instructional Designer

- Needs analysis
- Development and streamlining of instructional tools
- TA development program



Eric Jandciu
Strategist

- Research around first year student experiences and learning in discussion-based learning environments
- Peer review



Nouredine Elouazizi
Strategist



Learning Technology Ecosystem



Noureddine Elouazizi
Strategist



Kalev Hunt
Learning Technology Analyst



Tina Deng, Dorothy Mung and Lisa Liang
Learning Technology Rovers
(Co-op students)



Updates on LT Ecosystem

- Ecosystem support and its management
 - Over 22 unique LT systems
- Project support
 - Needs analysis
 - Design and implementation of LT systems and products
 - e.g., StatSpace, BioSpace, Interactive videos/textbooks in Chem, edX blended learning course 101
- Technical support (hands-on)
 - Over 630 requests in the past nine months



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- Technical support (hands-on)
 - Over 630 requests in the past nine months
- Impact of LT-mediated pedagogies
 - e.g., peer review in Scie 113, videos in Chem 123
- Learning Analytics
 - Natural Language Processing Techniques in Scie 113



Special T&L Initiatives: CWSEI, Cheriton, Harris'



Warren Code
Associate Director, Skylight



Sarah Gilbert
Senior Advisor, CWSEI



Carl Wieman
Senior Advisor, CWSEI

Carl Wieman Science Education Initiative

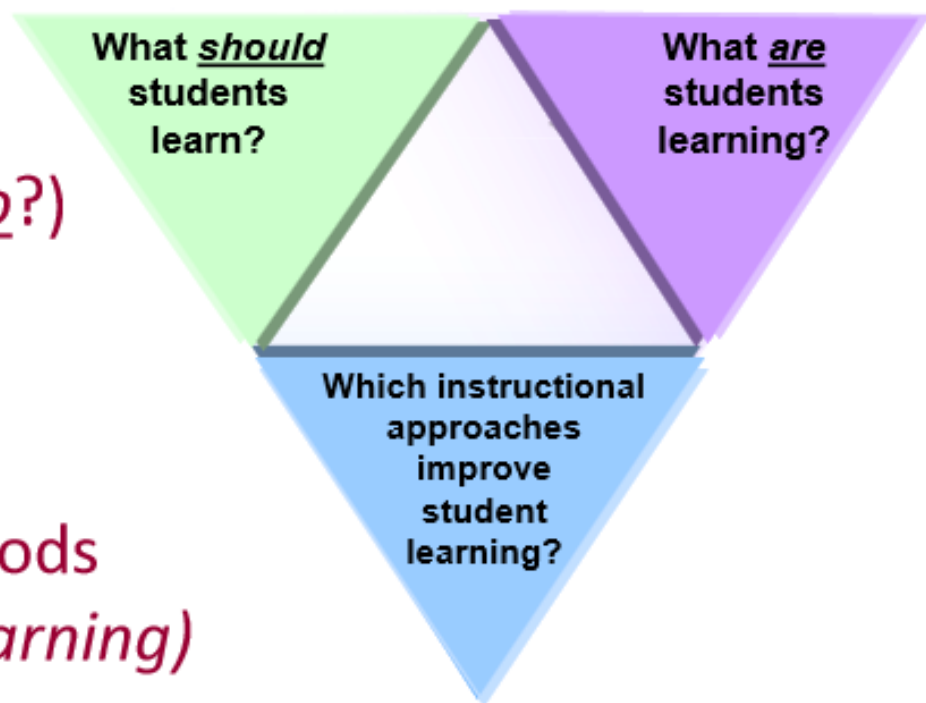
Started 9 years ago $\Rightarrow$ goal is widespread improvement in science education at UBC, focusing on department level.

CWSEI “Trinity” for each course

1st: Learning goals. (what should students be able to do?)

2nd: Good assessment

3rd: Improved teaching methods
(*research based, improve learning*)





Overview

- “Original” CWSEI funding in 4 depts/program, plus John & Deb Harris donation (partnership w/ Faculty of Science & depts) in EOAS, PHAS.
- **About a dozen STLFS**, almost all were here last year (say hi again!)
- **Still very active** – see talks and posters today!
- Running until approx. mid-to-late 2017.



Recent themes

- **Paired teaching:** study led by EOAS and PHAS groups, examples from 4+ departments.
- **Student experience, incoming skills, learning, success:** Intro CS, 1st-year Math, across EOAS
- **Classroom-based studies:**
 - group tests (Math & PHAS)
 - digital distractions (PHAS)
 - use of jargon (Life Sci), dept.-wide COPUS vs. student success
- **Labs:** Bio, Chem, EOAS, Phys



Internal Influence

- **Over 100 “Transformed” courses**, plus ~60 more with some CWSEI and/or Skylight influence
- **Over 42% of “seats” are in Transformed courses**; over 70% in courses with at least some changes
- **~180 faculty**
- **Over 100 peer-reviewed publications**
- **In almost all cases, methods are still in use in these courses, even though many projects finished years ago.**
- Inspired TLF model adopted by UBC Flexible Learning
- **Visitors to UBC**



External Influence

- **Transforming Institutions: Undergraduate STEM Education for the 21st Century** (invited chapter)
- **Transforming Education, Stimulating Teaching and Learning Excellence** (TRESTLE; Bay View Alliance): NSF funded project led by U. Kansas; dept-based model for change in 7 universities; UBC, U. Colorado as mentors
- **Influential research and tools**
- **Former STLFs**: careers still doing well
- **Invites** to speak at various institutions



New Initiative

- CIRTl (Lacey Samuels, Simon Bates)



Thanks!

Next: Lunch and posters until 1:00pm

Please let us know you are here. Feedback will be much appreciated!

1:00-2:30pm Workshops

- **First-Year Student Experience:** Sharing what has been learned about attitudes, skills & wellness for a continuing discussion (here in ESB 1012)
Karen Smith, Kseniya Garaschuk, Jessica Dawson, Patty Hambler, Kathleen Lane
- **Well-prepared students:** Motivating Students Before and During Class (5th floor: ESB 5014/6)
Sarah Bean Sherman, Linda Strubbe, Emily Scribner