THE UNIVERSITY OF BRITISH COLUMBIA

Centre for Teaching and Learning
Okanagan Campus

13th Annual Learning Conference "Engaging Every Learner"

May 3-4, 2017
University of British Columbia Okanagan campus
Kelowna, BC

#everylearner17

Conference Compendium

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13th Annual Learning Conference "Engaging Every Learner"

May 3-4, 2017
University of British Columbia Okanagan campus
Kelowna, BC

#everylearner17

The 13th annual learning conference explores how we can design, assess, and facilitate learning that engages every learner, allowing each student to build their own knowledge and contribute their own strengths to their learning and the learning of their classmates and instructors.

Together, we'll explore questions that reach through and beyond content and pedagogical content knowledge, like:

- How can one instructor engage every student in a large class?
- How do instructors recognize and celebrate their students' diversity without risking microaggressions?
- What can instructors do before, during, and after class, face-to-face and online, to support each student?
- How does an instructor create and maintain an environment where every student feels welcome to contribute?
- What critical pedagogies empower each student's unique voice?
- What technologies enhance a student's ability to engage and contribute?
- What are the promising practices in your discipline? Can they be adapted to other disciplines?

Keynote address by Dr.Sarah L.Eddy, "End of Lecture? Active learning increases student achievement".

Conference Programming Committee

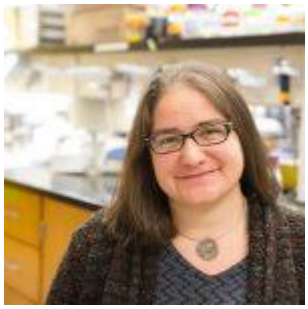
- Shirley Chau, School of Social Work, FHSD
- Tyler Donner, Unit 2 (Biology), IKBSAS
- Jannik Eikennar, School of Engineering
- Shirley Hutchinson, Unit 4 (Psychology), IKBSAS
- Andis Klegeris, Unit 2 (Biology), IKBSAS
- Christopher Martin, Faculty of Education
- Peter Newbury (chair), Centre for Teaching and Learning
- John Parry, Centre for Teaching and Learning
- Jordan Stouck, Department of Critical Studies, FCCS

Program Summary

Keynote: End of Lecture? Active Learning Increases Student Achievement

1.5 hour Keynote Presentation

Presenter: Dr. Sarah L. Eddy, Florida International University



The conference opened with a keynote address by Dr.Sarah L.Eddy, entitled "End of Lecture? Active learning increases student achievement ".

Dr. Sarah L. Eddy is an Assistant Professor in the Department of Biology and the STEM Transformation Institute at Florida International University. Trained as a behavioral ecologist, Sarah has shifted from studying behavior in the field to behavior in college classrooms. Her research focuses on understanding how college instructors can contribute to the goal of equal participation of historically underrepresented groups in science careers, specifically documenting current disparities in student classroom experiences and working with instructors to deploy interventions to address these. In addition to scholarly publications, Sarah's work has been featured in the New York Times, The Atlantic, Science, and Insight into Diversity.

Please see Appendix A for a copy of Dr. Eddy's presentation.

Engaging Students Online

20 Minute Research Presentation

Presenter: Nina Langton – UBC Okanagan

Abstract:

Student engagement is crucial to the success of an online course. This presentation will introduce best practices for designing and delivering an online course and then focus on user-friendly and practical software applications that can help make both online and face-to-face courses more interactive and engaging.

Technology Advances Driving the Evolution of Teaching Practices. Do These Practices Work?

20 Minute Research Presentation

Presenter: Celina Berg – UBC Vancouver

Abstract:

We are in an age where technology allows us to augment teaching practices, moving classrooms from passive lecture consumption by students, to more active participation in learning. This presentation will reflect on experiences employing these approaches in a language diverse classroom and intends to promote discussion surrounding the challenges introduced.

If We Only Knew Who Our Students Were

20 Minute Research Presentation

Presenter: Bratislav – Brad Mladenovic – Simon Fraser University

Abstract:

We often make assumptions about the expectations and experiences of students that are unfounded, and we often structure programs around those assumptions. The presentation describes the students' very own attitudes and approaches to learning by discussing their individual study strategies and perceptions about learning environments, instructional preferences, and collaborative interactions.

Development of Guided-Inquiry Activities for a Large Class Environment

60 Minute Interactive Workshop

Presenter: W. Stephen McNeil – UBC Okanagan, Tamara Freeman – UBC Okanagan

Abstract:

Attendees of this workshop will be directed through a process to create a guided-inquiry assignment, one designed to engage students through a scaffolded exploration of prior knowledge and analysis of information in order to generate a new core concept related to a specific topic.

At the end of his workshop, attendees of this workshop will:

- Understand the pedagogical principles, defining characteristics, and usual stages of a guided-inquiry activity
- Develop an outline for a guided inquiry assignment to be used in their own course

Workshop attendees will spend the majority of this workshop engaged in the creation of their own guided inquiry assignment. To facilitate this process, attendees are asked to come to the workshop with an answer prepared for the following questions:

- What is a core concept that your students might be reasonably expected to discover on their own, if provided with sufficient guidance to reflect on their own prior knowledge and to analyze a few key pieces of new information?
- If you were to express this core concept in one or two summarizing sentences, what would those sentences be?

Creating and Sharing Strategies for Fostering an Inclusive, Intercultural Learning Environment

60 Minute Interactive Workshop

Presenter: Ashley Welsh – UBC Vancouver, Meghan Allen – UBC Vancouver, Kayli Johnson – UBC Vancouver

Abstract:

The university is becoming an increasingly diverse place where faculty, staff, and students from various linguistic, social, and cultural backgrounds engage with one another. In this workshop, participants will discuss targeted case scenarios and share promising practices for supporting the learning and experience of students in intercultural learning environments.

Cut To The Chase – Maximizing Interactive Learning: A New Model for Anatomy Laboratories

20 Minute Research Presentation

Presenter: Erin Bull – Health and Exercise Science, UBC Okanagan, Taylor Stranaghan – Health and Exercise Science, UBC Okanagan, Gregory duManoir – Health and Exercise Science, UBC Okanagan

Abstract:

We aim to provide an interactive learning environment by enhancing the laboratory components of anatomy courses through 3D images and models. This approach may enhance spatial awareness and reduce cognitive load by allowing students to use 3D printed models for self-study purposes, reproducing laboratory tasks at their own pace.

Critical Friendship and Inter-Faculty Collaborative Inquiry: Education and Nursing

20 Minute Research Presentation

Presenter: Lisa Moralejo – School of Nursing, UBC Okanagan, Lindsay Kennedy – School of Nursing, UBC Okanagan, Karen Ragoonaden – Faculty of Education, UBC Okanagan

Abstract:

This presentation explores how three researchers utilize critical friendship to systematically examine the nuanced roles of their own practice in a community of inquiry. An ancillary theme investigates sustainable structures for supporting the professional development of teacher and nursing educators. Respectively from two professional faculties on one campus, university educators came together in September 2015 to form the Critical Friendship in Nursing and Education (CFiNe) community of inquiry. Data collection includes research notes, journaling, and monthly meetings. This community of inquiry has the potential to provide the foundations of critically infused professional development paradigms promoting a collaborative stance between Education and Nursing.

Engaging Every Learner in Adopting Healthy Behaviours

20 Minute Research Presentation

Presenter: Terry McCurdy – McMaster University

Abstract:

Evidence continues to grow for the role that nutrition and lifestyle play in preventing chronic diseases and extending longevity. Nurses are uniquely positioned to inform clients and inspire change. Approaches used to encourage in and out of class participation in an undergraduate nutrition class for nursing students will be described.

Explore the Inclusive Technology Lab at UBC Okanagan Library

60-minute interactive workshop

Presenter: Barbara Sobol – UBC Okanagan, Meghan Currie – UBC Okanagan

Abstract:

Immerse yourself in an assistive technology environment – the Inclusive Technology Lab. Create a digital mind map to plan a new syllabus. Speak aloud and watch your voice transform into text on the screen. Sit or stand and type on an ergonomic keyboard. Imagine and discuss how the ITL supports students of diverse abilities.

Combining Large and Small Class Experiences in a First-Year Service Course

60-minute interactive workshop

Presenter: Pam Sargent – Dept of Mathematics, UBC Vancouver, Fok-Shuen Leung – Dept of Mathematics, UBC Vancouver

Abstract:

We explore a teaching model which combines large faculty-led lectures with small graduate student-led “recitations”, or problem-based classes. This model is used effectively in seminar-style courses at small, elite institutions. We describe how we have adapted it to first-year Mathematics courses at a large, public research university.

The Chinese Peasant Rebellion: The Risks and Rewards of Maximizing Student Agency in a First Year History Class

20 Minute Research Presentation

Presenter: Sheila McManus – University of Lethbridge

Abstract:

In this presentation I will discuss some of the significant benefits and interesting risks of giving the 90 students in my first-year World History class as much choice as possible in their individual assessments and class discussions.

Providing Choice in the Classroom: Assignment Contracts and Flexible Evaluation Methods

20 Minute Research Presentation

Presenter: David Geary – UBC Okanagan

Abstract:

It is well known that students differ in the ways that they navigate a learning environment and express what they know. The aim of this paper is to explore flexible learning techniques that empowers learning and allows students to set their own deadlines and evaluation methods.

Democratizing Required Courses: Promoting student empowerment and engagement

20 Minute Research Presentation

Presenter: Kate Power – UBC Vancouver

Abstract:

Student learning outcomes are substantially affected by motivation. Given that students often lack interest in “dry” mandatory writing courses, one challenge faced by instructors is to motivate engagement with the material. This presentation reports on a pilot approach to democratizing required writing classes, with a view to increasing student motivation.

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smartEducation and Flourishing: Exploring Practice and Praxis for Educator Wellbeing

60 Minute Interactive Workshop

Presenter: Karen Ragoonaden – Faculty of Education, UBC Okanagan, Sabre Cherkowski – Faculty of Education, UBC Okanagan

Abstract:

In this experiential learning workshop, participants will be provided an overview of the growing field of research on mindfulness and wellbeing for educators, and an opportunity to experience practices developed from evidence-based stress based reduction and mindfulness programs for teachers (smartEducation) and from recent SSHRC-funded research on organizing schools for flourishing.

"Resistance as Engagement": Developing Strategies for Information Literacy in a Post-Truth World

60 Minute Interactive Workshop

Presenter: Linda Elmose – Dept. of Political Science, Okanagan College

Abstract:

In this workshop, we interactively examine a teaching strategy I term "Resistance as Engagement". Drawing from Resistance Theories of Education and Critical Pedagogy (e.g. Giroux, hooks, Freire), I argue that "resistance strategies" involving teaching public controversies, science/evidentiary skepticism, "alternative facts", "fake news", and even conspiracy theories, might enhance engagement whilst empowering students' development into autonomous, critically thinking citizens operating in a confusing post-truth world.

Pendulum Swings in Teaching Practice

20 Minute Research Presentation

Presenter: Catherine Broom – UBC Okanagan

Abstract:

In this presentation, I will argue that the new BC curriculum and much thinking over-emphasizes a focus on the "how" of teaching, that the pendulum has swung dramatically to one extreme. I will argue that our students benefit the most from our teaching, when we center our teaching around both the "what" and the "how" of teaching. Over-emphasizing the "what" can lead to disengaged teaching, such as lecture, and over emphasizing the "how" of teaching can lead to activity based learning that has little depth. As educators, we can plan most effectively when we consider both the "what" and the "how" questions in our planning and teaching. I will give examples of how this can be done, drawing from BC's past and present curriculum documents.

Teaching With Enthusiasm in Cross-Cultural Perspective

20 Minute Research Presentation

Presenter: Hugo De Burgos – UBC Okanagan

Abstract:

Teaching Evaluations in most universities in Canada include in its student's survey a question on the "Enthusiasm Shown for Subject Matter". Pragmatically, however, "being enthusiastic" and "showing enthusiasm" are two separate experiences. This research explores cross-cultural strategies for enthusiastic teaching that range from overt cheerful excitement to solemn and ceremonious pedagogical styles.

Insights from Using Appreciative Inquiry in a Course Evaluation

20 Minute Research Presentation

Presenter: Meghan Allen – Dept of Computer Science and Vantage College, UBC Vancouver, Jessica Dawson – Dept of Computer Science, UBC Vancouver, Steve Wolfman – Dept of Computer Science, UBC Vancouver

Abstract:

We will describe our use of Appreciative Inquiry, a positively-framed, participatory methodology that focuses on driving change, as a key piece of a course evaluation project. We will present the overall course evaluation plan, explain how using Appreciative Inquiry provided a unique lens for evaluation, and share our preliminary findings.

Finding, Using, and Remixing Open Resources For Your Courses

60 Minute Interactive Workshop

Presenter: Jonathan Verrett – UBC Vancouver, Michelle Lamberson – UBC Okanagan, Sajni Lacey – UBC Okanagan

Abstract:

Are you interested in learning how to find, use, and remix open education resources? Would you like to learn more about how to share resources back to the education community? This session is intended to address common questions and highlight current uses of openly licensed materials for teaching and learning.

Please see Appendix B for a copy of the "Finding, Using, and Remixing Open Resources For Your Courses" presentation.

The First Year Experience – Creating a Community of Practice for First Year Educators

60 Minute Interactive Workshop

Presenter: Karen Smith – UBC Vancouver, Patty Hambler – UBC Vancouver, Kari Marken – UBC Vancouver

Abstract:

There is growing interest and momentum from faculty to explore how they can better support first year students' academic success and wellbeing. This workshop will explore the benefits and challenges of first year, and based on the First Year Experience education symposium held at UBC-V, will foster new connections, knowledge exchange and innovation.

Getting to Know Your Industry: Enhanced Teaching and Learning through an Online Market Research Tutorial

Poster Session

Presenter: Kim Buschert – UBC Library, UBC Okanagan, Aleha McCauley – UBC Library, UBC Vancouver

Abstract:

Secondary industry research is integral to successful venture design, business planning and marketing strategy, but is seen as a time consuming and challenging process. Learn about a Teaching and Learning Enhancement Fund project to design an online industry research tutorial to benefit University of British Columbia students in multiple disciplines.

Engaging Reflective Thinking During and Exam: Slowing Students Down on Multiple Choice Questions Increases Performance

Poster Session

Presenter: Joss Ives – UBC Vancouver, Jared Stand – UBC Vancouver

Abstract:

We examine the implications of dual processing theory (fast, reflexive vs slow, reflective thinking) in the context of multiple-choice questions on physics exams by including an “Explain your answer” box. We observe statistically significant increases in the odds of a student answering the corresponding question correctly when having to self-explain.

TA Credentialing Program at UBC Okanagan

Poster Session

Presenter: John Parry – UBC Okanagan

Abstract:

A visual presentation of the Teaching Assistant Credentialing program at the UBC Okanagan Campus. The program has two parts – the foundational 12 hour program and the practical component in which CTL Staff observe and give feedback to the TAs offering seminars.

Top Ten Ways to Get (and Keep) Their Attention

Poster Session

Presenter: Rosalind Warner – UBC Okanagan

Abstract:

Humans are hard-wired to be distractible, and learning is no exception! This presentation will describe the top ten ways to get and keep learner attention. The trick is to be fun, engaging, impactful, and non-punitive.

Coordinating Assessment

Poster Session

Presenter: Jannik Eikenaar – School of Engineering, UBC Okanagan, Ayman Elnaggar – School of Engineering, UBC Okanagan, Megan Lochhead – School of Engineering, UBC Okanagan

Abstract:

This poster explains our efforts to coordinate the assessment schedules for undergraduate Engineering students at UBC Okanagan. We describe specific, School-based challenges in teaching and learning, explore solutions and strategies, and identify next steps. We look forward to discussing our efforts and hearing conference attendees' experiences and suggestions.

Threshold Concepts in Higher Education: Moving Beyond Library Instruction

Poster Session

Presenter: Sajni Lacey – UBC Okanagan

Abstract:

Threshold concepts are a promising practice being actively promoted in library instruction through a new document called the Framework for Information Literacy in Higher Education. Bring your expertise and knowledge to help bridge the gap between these concepts and its application for learners in all disciplines.

Supporting the Peer Notes Program

Poster Session

Presenter: Deanna Simmons – UBC Okanagan, Vania Chan – UBC Okanagan, Earllene Roberts – UBC Okanagan

Abstract:

Post-Secondary institutions' academic accommodations for disabled students include peer notetakers. At UBC Okanagan the demand for this service grew and a streamlined process was required. Connect was engaged to ensure ease of process, accessibility and anonymity of the notes. It has been a successful program for the last 4 years.

Tutor-Less Problem-Based Learning: Effects on Problem-Solving Skills in Large Science Undergraduate Classes

Poster Session

Presenter: Tyler Wenzel – UBC Okanagan, Heather Hurren – UBC Okanagan, Andis Klegeris – UBC Okanagan

Abstract:

Standard university curricula mainly focus on delivering course content, giving few opportunities to develop networking, prioritizing, team work, peer evaluation, and problem-solving skills. A tutor-less method of problem-based learning (PBL) suitable for large undergraduate classes was developed to model the above aspects of post-university real-world workplace experiences.

Emails or Conversations?: Teaching and Learning in the Digital World Where Conversation is a Second Class Citizen

Poster Session

Presenter: Matt Husain – UBC Okanagan

Abstract:

This paper argues that while emails and text messages can complement or supplement a discussion, they can hardly become perfect replacements of human interaction. Additionally, my paper argues a constant aspiration to stay 'connected' and 'up-to-date' can create dependency on gadgets, additional stress, and unproductivity. Based on observation and piloted initiatives on 89 third and fourth year students, I explore ways to remain on top of interactive teaching and learning without treating texting and emails as lifelines.

Excellence in Teaching and Learning - Teaching With Technology

Poster Session

Presenter: Stacey Mateika – Red Deer College

Abstract:

N/A

Advancing Student Learning and Engagement through Midterm Corrections

Poster Session

Presenter: Bingrui (Cindy) Sun – University of Calgary, Mohana Gowri Arumugam – University of Calgary, Rachael Edino – University of Calgary

Abstract:

Assessment corrections have been used in post-secondary education and have been found effective to improve student learning, by encouraging students to reflect on their mistakes. Research further points out that assessment corrections help student become self-regulated learners. In the 2016 fall semester at the University of Calgary, a scholarship of teaching and learning (SoTL) project was conducted in a large introductory level statistics course. The goal of this project was to implement midterm corrections as well as to examine the impact of midterm corrections on student learning. This poster presentation will disseminate the research findings of this SoTL project.

Flipping Large Classrooms using Clickers: The Engineering Economics Experience

20 Minute Research Presentation

Presenter: Gord Lovegrove – School of Engineering, UBC Okanagan

Abstract:

ENGR 305 is a core course for UBCO's School of Engineering wherein all disciplines – civil, mechanical, electrical – take it in 3rd year; however, it has no pre-requisites, so often 1st, 2nd, and 4th years are slotted in to meet transfer and co-op credits and schedules. Thus we have a large, diverse, technical oriented crowd forced to enrol in and pass a course on the softer side of life, the social sciences. The material – what formulae there are – is difficult not because of its computational demands, but because of its deceiving simplicity and volume. Recent growth in the School, to a class size of 270, further compounds that this course has become difficult to engage students, despite some of our School's best instructors teaching it. Moreover, during mid-term season, attendance suffers terribly, and students get behind. The failure rate then becomes a problem, approaching 10% for a non-technical course, a very sad and embarrassing result – we can do better! This year, a radical attempt was made to 'flip the classroom' using Clickers and in-class problem sessions, while eliminating mid-terms and take-home assignments. This freed up time to study for other courses, and for weekly, shorter in-class quizzes. Moreover, in-class debates and problem sessions became the norm, with lectures on theory reserved for only 1 out of 3 hours per week. This presentation will focus on what was done, how the students reacted, and the results – did anything improve?

Using Formative Feedback to Encourage Student Engagement in Engineering Classes

20 Minute Research Presentation

Presenter: Claire Yan – UBC Okanagan, Ayman Elnaggar – UBC Okanagan

Abstract:

In this presentation, we will discuss a formative feedback method, the muddiest point, implemented in three engineering classes to encourage student engagement and self-reflection. We will present data from these classes and discuss the impact of this method on student learning and instructors' teaching.

What We Could Do Before Final Grading: Two Ideas

20 Minute Research Presentation

Presenter: Dr. Ivona Mladenovic – Simon Fraser University

Abstract:

Instructors create and grade exams, but can they prepare exam 'cheat sheets' for their students? The presentation will discuss two innovative approaches to engaging learners in lowering their exam anxieties: 'Write Your Own Exam', and 'Final Exam Clinic'. The goal is to promote classroom assessment that empowers learners, not instructors.

Engage Your Students Without Flipping Out: Simple Active Learning Tools to Fit Any Classroom

60 Minute Interactive Workshop

Presenter: Richard Plunkett – UBC Okanagan

Abstract:

Whether a classroom is "flipped" or not, evidence points to the benefits of student engagement and active learning. "Flipping" may not fit every class/instructor, but active learning can be integrated into any class. This workshop will provide simple take-home strategies with low investment and high potential payoff in increased learning.

Two Stage Exams: Learning Together?

60 Minute Interactive Workshop

Presenter: Brett Gilley – UBC Vancouver, Joss Ives – UBC Vancouver

Abstract:

Exams are typically used for evaluation in post secondary education, two stage exams are a simple technique that changes exams into powerful learning experiences. In two stage exams (aka cooperative exams, group exams, or pyramid exams) students complete a test as individuals and then immediately complete the same, or very similar, test collaboratively in groups of four. The students' studying, their recent experience with the same questions, and the high stakes environment of the exam create focused and useful discussions among the groups. As an instructor, they are a joy to observe. Retention of material is increased dramatically. At the Vancouver Campus of the University of British Columbia, Two Stage Exams are very popular, used in over 100 classes in a variety of faculties and departments. In this workshop we will discuss the features we believe make these exams successful, and how you can deploy them in your own classes.

Telecollaboration in Language Teaching and Learning

20 Minute Research Presentation

Presenter: Grisel Garcia Perez – UBC Okanagan, Martin Blum – UBC Okanagan, Marina Kriscautzky – Universidad Autonoma de Mexico

Abstract:

This telecollaborative project took place between students taking Spanish Applied Linguistics at the University of British Columbia, Okanagan and students studying at the Autonomous University of Mexico. By exchanging information on the differences between first and second language acquisition, the students had the opportunity not only to develop listening, speaking, reading and writing in an authentic setting, but also to become more aware of the similarities and differences between their own culture and that of their Mexican counterpart. The project offered insights into how information technology can be used as a tool not only to develop language skills, but also to develop the students` sense of intercultural awareness.

Integrating Language and Technical Education to Improve Outcomes for First-Year International Students in Engineering Programs

20 Minute Interactive Research Presentation

Presenter: Gabriel Potvin – Depart of Chemical and Biological Engineering and Vantage College, UBC Vancouver, Mike Murphy – Vantage College, UBC Vancouver

Abstract:

The integration of language and communication instruction with technical engineering training for first-year international students in the Vantage College program at UBC is presented. The nature and logistics of this integrated approach and its effectiveness in terms of technical content mastery and improvement of communication skills are discussed.

Methods for Improving Student Outcomes in German, 2nd Language Teaching

20 Minute Research Presentation

Presenter: Claude Desmarais – UBC Okanagan

Abstract:

My present 2nd language acquisition teaching methodology (for German) is learner-centred, and has increased general student engagement and instructor ability to mentor students. Yet these increased demands have also harmed some weaker students, leading me to take steps to counteract this and engage every student in the learning process..

StudySmart: Learning Strategies for First Year Science Students

60 Minute Interactive Workshop

Presenter: Cindy Bourne – UBC Okanagan, Breanne Molnar – UBC Okanagan, Tamara Freeman – UBC Okanagan

Abstract:

Studies reveal that student success is strongly correlated to their ability to efficiently manage their study habits. This workshop will present the layout for StudySmart, a mandatory seminar embedded in first year courses to introduce students to critical learning skills and productive time management of their study habits.

Making It Stick: The Science of Successful Learning

60 Minute Interactive Workshop

Presenter: Henry L. "Roddy" Roediger – Washington University in St. Louis

Abstract:

Cognitive psychologists have a long tradition of research illuminating processes of learning and memory, yet their findings have rarely penetrated educational practice. This situation is starting to change. I will report on a program of research about the benefits of retrieval practice through quizzing as an aid to learning. Testing or quizzing is a practice usually considered only to measure what a student knows, but experimental research shows that retrieving information helps to stabilize the knowledge and make it easier to recall on future attempts. My presentation will provide evidence advancing from laboratory experiments to field experiments in classrooms showing how frequent quizzing can improve educational outcomes. If adopted, retrieval-enhanced learning may have far-reaching implications for education at all levels. Many experimental or quasi-experimental studies in K-12 as well as university classrooms have shown meaningful benefits for students.

Speaker Bio:

Roddy Roediger is the James S. McDonnell Distinguished University Professor at Washington University in St. Louis. A psychologist who focuses on human learning and memory, his research interests include factors that greatly increase learning and retention and their application to education; memory illusions and the development of false memories; the study of people with highly superior memory abilities; and collective and historical memory. He received a bachelor's degree in psychology from Washington & Lee University and his Ph.D. in cognitive psychology from Yale University. He previously taught at Purdue University, the University of Toronto, and Rice University. Roediger is recipient of a Guggenheim Fellowship, and he has served as president of the Association for Psychological Science and Chair of the Governing Board of the Psychonomic Society, as well as serving in other leadership posts in organizations of psychologists. He is a fellow of the American Association for the Advancement of Science, the American Academy of Arts and Sciences, the American Psychological Association, and the Association for Psychological Science. Roediger received the Association for Psychological Science's William James Lifetime Achievement Award, as well as their Lifetime Mentoring Award for his many graduate students and postdoctoral fellows who have gone on to success in the field. He is a member of the Society of Experimental Psychologists and received its Howard Crosby Warren Medal for his studies of illusory memories. He recently received the Lifetime Achievement Award from the Society of Experimental Psychology and Cognitive Science.

How We Are Engaging Every Engineering Student in Design Thinking

20 Minute Research Presentation

Presenter: Sabine Weyand – School of Engineering, UBC Okanagan, Bryn Crawford – School of Engineering, UBC Okanagan

Abstract:

Teaching university students creativity and design thinking has been deemed one of the key factors to future innovation. At the School of Engineering, we are aiming to engage every learner through a series of design courses from their first to final year of study..

Putting Ethics into Action

20 Minute Research Presentation

Presenter: Jeff McLaughlin – Thompson Rivers University

Abstract:

Ethics in Action challenges the false belief that philosophy is just about theory and only indirectly useful as a means to develop critical thinking skills. University students developed, real world ethics based projects. Teams used the personal talents of each student and then put ethics into action. In one example, students raised public awareness about the ethics of blood and organ donation which resulted in 200 new donors.

Engaging Every Learner Through Multiple Learning Modalities

20 Minute Research Presentation

Presenter: Robert Campbell – Faculty of Education, UBC Okanagan, Greg Wetterstrand – Faculty of Education, UBC Okanagan

Abstract:

Working as professional collaborators two Education faculty professors created learning experiences and joint assignments that built on multiple modes of knowing. The resulting emergence of creativity, imagination and ingenuity engaged learners who reported that the experience was a rare opportunity for learning and one, which they valued and favoured.

Teaching Science Inclusively

60 Minute Interactive Workshop

Presenter: Linda Strubbe – UBC Vancouver, Sarah Bean Sherman – UBC Vancouver

Abstract:

We present an introductory workshop on strategies for teaching science equitably and inclusively. The opening activity helps participants think about implicit bias and privilege; in the second half, participants discuss specific teaching practices to promote equity in their own science classrooms (based on work by Tanner 2013; Linse & Weinstein 2016).

How Teaching Practices Influence Student Mental Health and Wellbeing

60 Minute Interactive Workshop

Presenter: Michael Lee – UBC Vancouver, Patty Hambler – UBC Vancouver, Steven Barnes – UBC Vancouver, Karen Smith – UBC Vancouver, Diana Jung – UBC Vancouver

Abstract:

The research project How Teaching Practices Influence Student Mental Health and Wellbeing reveals how instructional practices can have a positive impact on the student learning experience by promoting their wellbeing. This interactive session will share our findings, share strategies and instructional tools, and integrate ideas via group discussions.

Please see Appendix C for the Project Overview.

Addressing Classroom Climate

1.5 Hour Workshop

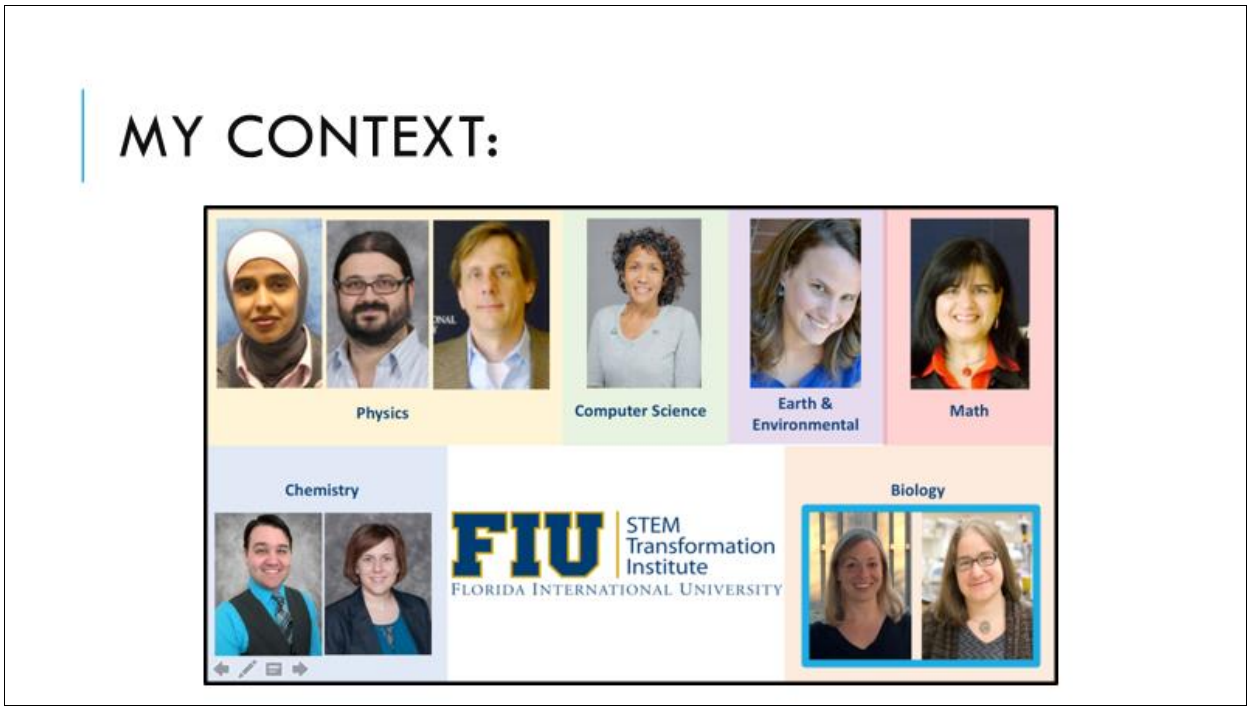
Presenter: N/A

Abstract:

Discussions about society absolutely have a place in our classrooms, in any and all disciplines. Educators and students must be able to have critical, scholarly discussions about hatred, racism, oppression, colonialization, and more. These are not easy conversations for educators to initiate or moderate, nor is reacting and responding to incidents in the classroom. You won't leave this session with The Answers but you will leave with a raised awareness and the assurance that we are a community ready and willing to continue the disc

Appendix A: End of Lecture? Active Learning Works Across STEM Disciplines Presentation

Presenter: Dr. Sarah L. Eddy, Florida International University



OUTLINE

What is the evidence for active learning?

Can active learning also reduce achievement gaps between student groups?

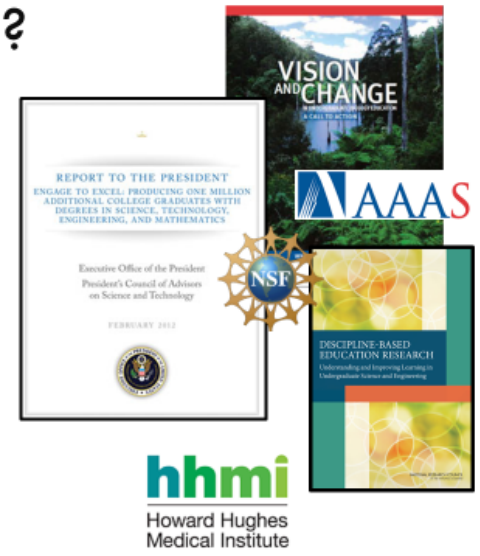
How does active learning produce these outcomes?

WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Calls from national agencies to incorporate active learning into all college STEM classrooms.

But what is the evidence for these calls?

Needed a synthesis of experiments on STEM college classrooms



WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Turn to your neighbor:

Define **Active Learning**

1 minute

WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Active Learning (a working definition):

- Engages students in the process of learning through activities and/or discussions in class
- Emphasizes higher order thinking
- Often involves groupwork

Traditional Lecture (control condition):

- Students passively listen to expert

Methods: Meta-analysis

- Hand searched 55 STEM education journals from 6/1/1998 to 1/1/2010
  - 642 initial studies identified
  - 225 studies met criteria for rigor

Freeman, Eddy et al. 2014
PNAS

WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Highly Collaborative Effort

UNIVERSITY of WASHINGTON

BIOLOGY EDUCATION RESEARCH GROUP BERG

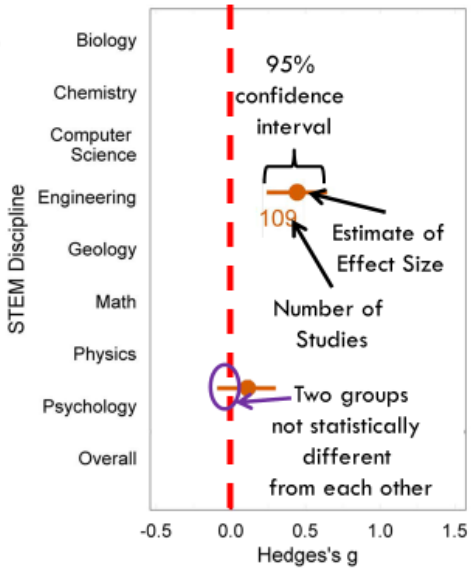
WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Question: Does Active Learning increase student performance on assessments across STEM disciplines relative to Traditional Lecture?

Effect Size:

Hedges's g = Mean Performance in Trt – Mean in Control / Pooled SD

Freeman, Eddy et al. 2014 *PNAS*

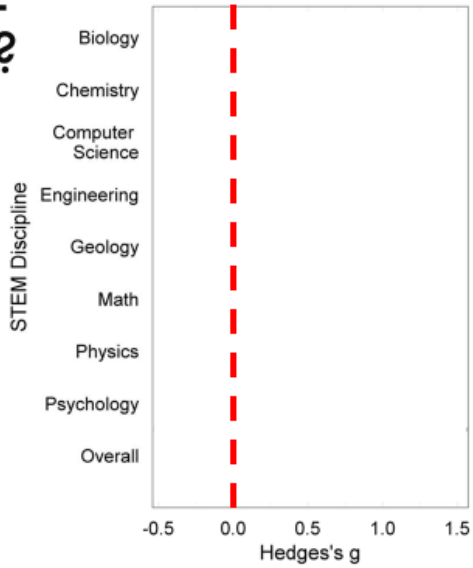


WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Question: Does Active Learning increase student performance on assessments across STEM disciplines relative to Traditional Lecture?

Yes! Student in Active Learning classes perform almost ½ a standard deviation better on identical assessments than students in Traditional Lecture classes.

Freeman, Eddy et al. 2014
PNAS

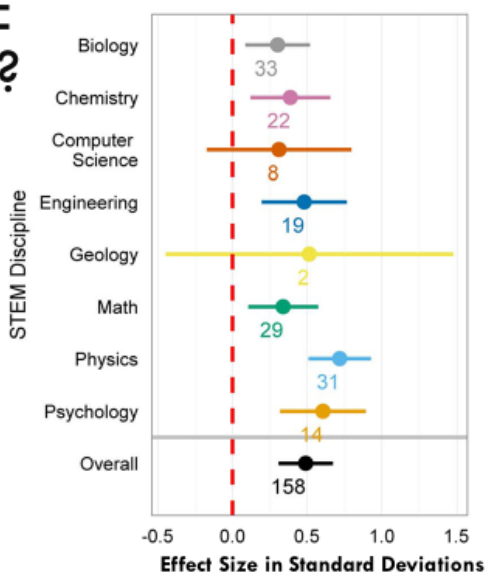


WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Question: Does Active Learning increase student performance on assessments across STEM disciplines relative to Traditional Lecture?

Putting results in context:

- Collected SDs for exam performance from multiple years of three introductory STEM courses at UW.
- In intro STEM, 6% increase in exam scores; 0.3 increase in average course grade (or B to B+, C+ to B, etc).



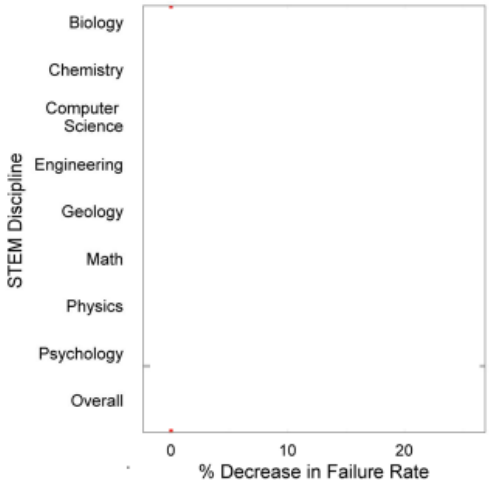
WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Question: Does active learning decrease Ds, Fs earned in and/or withdrawals from courses across STEM disciplines relative to traditional lecture?

Yes: Risk difference = 12.0%

- Avg. Traditional: 33.8% DFW
- Avg. Active Learning: 21.8% DFW
  - Students 1.5 times more likely to fail in traditional course than an active learning course.

Risk Difference% **DFW in Control – % DFW in Trt**



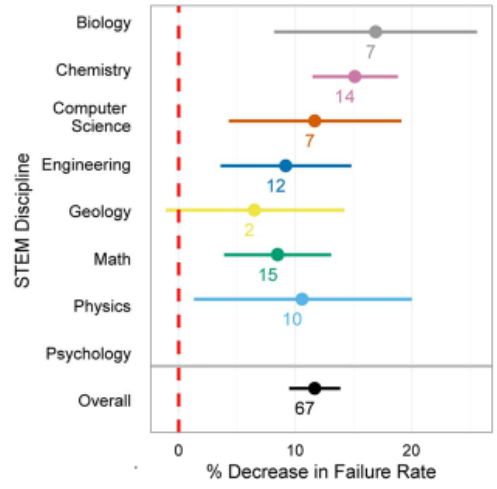
WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Question: Does active learning decrease Ds, Fs earned in and/or withdrawals from courses across STEM disciplines relative to traditional lecture?

Putting results in context:

- Meta-analysis of biomedical trials showed trials stopped early for benefit when:
  - P-value < 0.001
    - Our p-value: p<< 0.001
  - relative risk: 0.53 (0.22-0.66)
    - Our relative risk: 0.64
- **In our sample: 3,516 fewer students would fail**

Pocock 2006



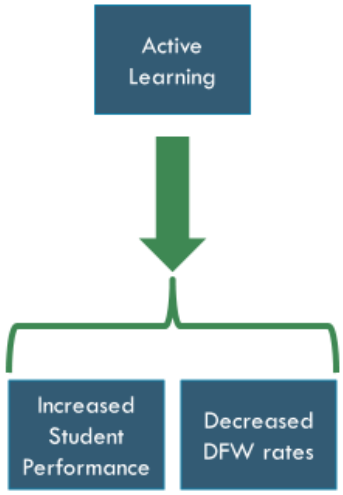
OUTLINE

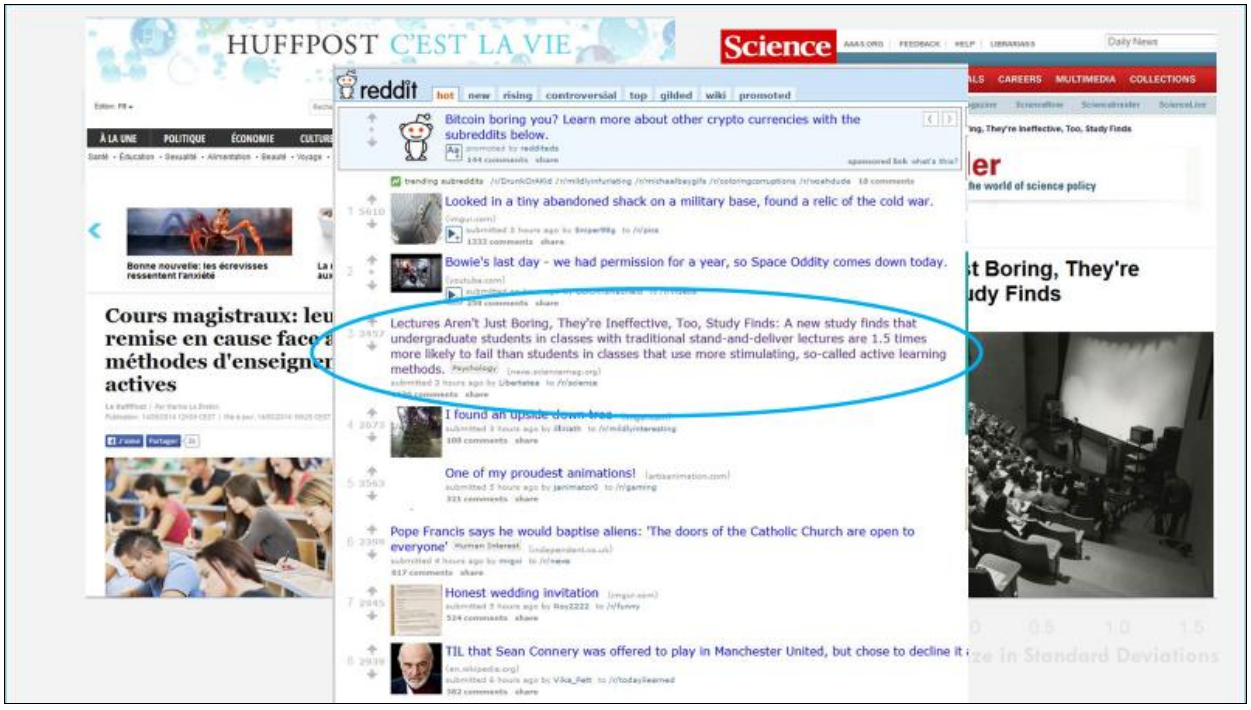
What is the evidence for active learning?

- Increases student performance by ½ SD (~6%)
- 12% fewer students would fail

Can active learning also reduce achievement gaps between student groups?

How does active learning produce these outcomes?



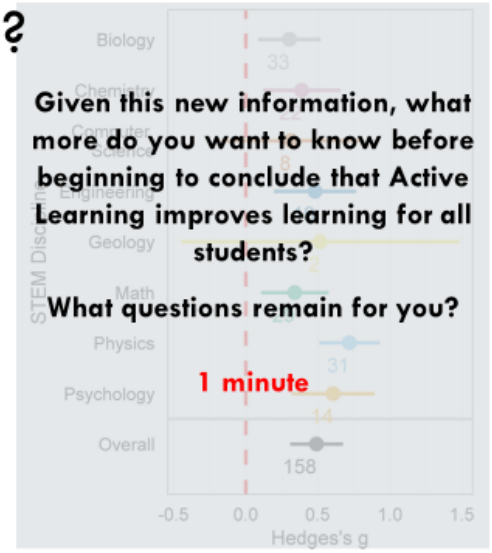


WHAT IS THE EVIDENCE FOR ACTIVE LEARNING?

Studies in Meta-analysis:

- Most done at one type of institution: selective R1s.
- Majority of students at these institutions: White Americans.
- Looked at instruction as a binary – really it's a range.
- Pooled across all types of active learning.

Freeman, Eddy et al. 2014
PNAS



Given this new information, what more do you want to know before beginning to conclude that Active Learning improves learning for all students?

What questions remain for you?

1 minute

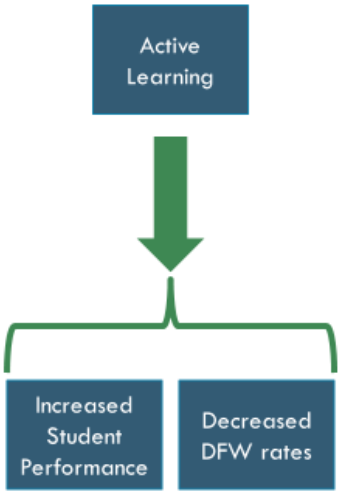
OUTLINE

What is the evidence for active learning?

- Increases student performance by ½ SD (~6%)
- Decreases failure rates by 12%

Can active learning also reduce achievement gaps between student groups?

How does active learning produce these outcomes?



CAN ACTIVE LEARNING CLOSE ACHIEVEMENT GAPS?

Why might active learning work differently for different students?

Students differ in their preparedness for college

- High schools differ in how well they prepare students for college (ETS 2015)
- Families differ in how much they can help students prepare and adjust to college

Students come from different cultural contexts

- Interdependence vs. Independence: Latina/o, Asian, and Working Class cultures > White and Middle Class cultures (Stephens et al. 2014; Kim and Markus 2002; Crisp 2014)
- Talking While Learning: Black, Working Class cultures > White or Middle Class > Asian (Kim and Markus; Hitchcock 2011)

Prediction: Active learning will help students from historically underrepresented groups in science more than those from majority groups.

CAN ACTIVE LEARNING REDUCE ACHIEVEMENT GAPS?

Context:

Large Southeastern US university

Course: all of biology in one semester

Student population:

- Non-majors and underprepared majors
- Race/Ethnicity:
  - Native American: 1.1%
  - Asian: 7.4%
  - Latin@: 10.3%
  - Black: 13.9%
  - White: 59%
  - Undeclared, Mixed or International: 8%
- Generation Status: 24% First-Generation
- Gender: 66.3% Female

Kelly Hogan, Senior Lecturer Assistant Dean for the Office of Instructional Innovation, College of Arts & Sciences

CBE—Life Sciences Education
Vol. 13, 453–468, Fall 2014

Article

Getting Under the Hood: How and for Whom Does Increasing Course Structure Work?

Sarah L. Eddy* and Kelly A. Hogan†

CAN ACTIVE LEARNING REDUCE ACHIEVEMENT GAPS?

Structure:
Increased Structure (Active Learning)
Low structure (Lecture)

Kelly Hogan facilitating her class

CBE—Life Sciences Education
Vol. 13, 453–468, Fall 2014

Article

Getting Under the Hood: How and for Whom Does Increasing Course Structure Work?

Sarah L. Eddy* and Kelly A. Hogan†

CAN ACTIVE LEARNING REDUCE ACHIEVEMENT GAPS?

Study Design:

- Low Structure: 3 terms
- Increased Structure: 3 terms

Statistical methods:

- Outcome: Total exam points earned
  - Checked for exam equivalency between terms: Cognitive task exam questions ask them to do
- Model: Linear Regression
  - Controlled for: Student SAT score

Kelly Hogan facilitating her class

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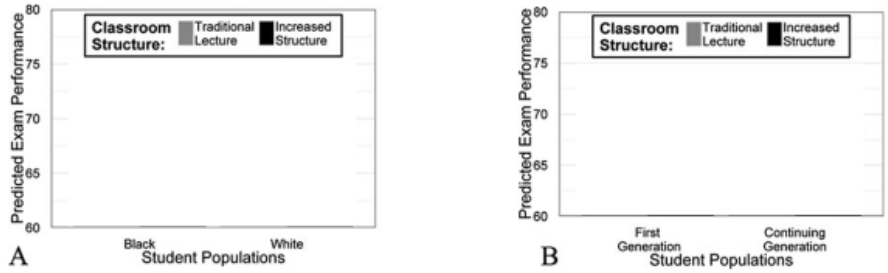
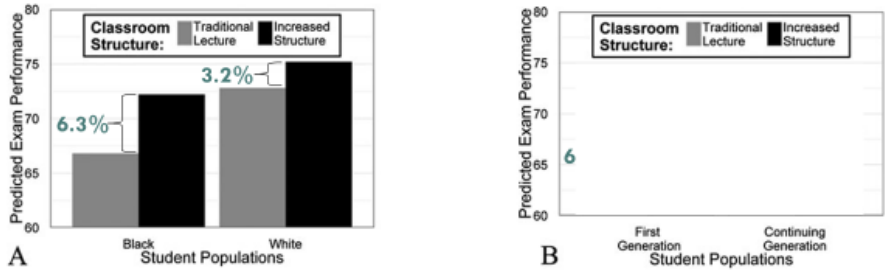


Predicted Performance based on regression model. Students matched by SAT score, gender, Term.

CAN ACTIVE LEARNING REDUCE ACHIEVEMENT GAPS?

Yes! Everyone sees an increase in exam performance with 'increased structure', but Black students and First-Generation experience an additional increase.



Halves the achievement gap with White students

Closes the achievement gap with Continuing-Generation students

Performance Predicted based on regression model. Students matched by SAT score, gender, Term.

OUTLINE

What is Discipline Based Education Research?

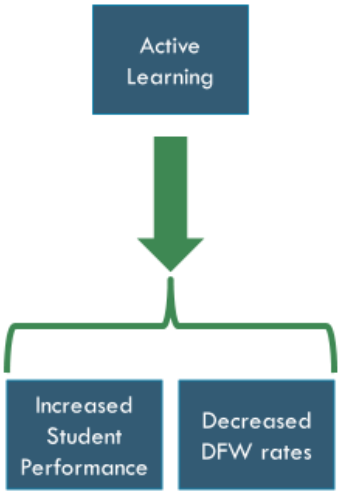
What is the evidence for active learning?

- Increases student performance by ½ SD (~6%)
- Decreases failure rates by 12%

Can active learning also reduce achievement gaps between student groups?

- Decreases gap between Black and White students
- Closes gap between first- and continuing generation students

How does active learning produce these outcomes?



OUTLINE

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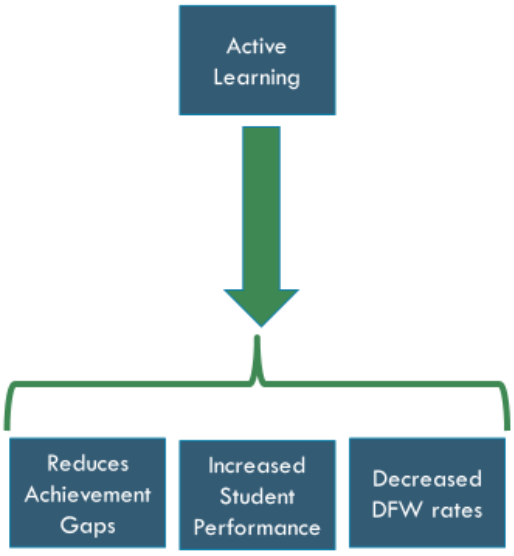

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Why should we care about the 'how'?

- We want people to be able to adapt intervention to meet their needs, but these adaptions need to be wise
  - Can flexibility around surface features
  - Need to have fidelity of implementation of critical features
- Understanding how something works helps us figure out what is a critical and what is a surface feature

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Structure:	Graded Preparatory Assignments	Student in-class engagement
Increased Structure (Active Learning)	Online homework (one per week)	Students working on problems 34.5% of course time
Low structure (Traditional Lecture)	None or < 1 per week	Talk < 15% of course time

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Structure:	Graded Preparatory Assignments	Student in-class engagement	Graded Review
Increased Structure (Active Learning)	Online homework (one per week)	Students working on problems 34.5% of course time	Optional: 1 per week
Low structure (Traditional Lecture)	None or < 1 per week	Talk < 15% of course time	< 1 per week
High Structure (Haak et al. 2011)	>1 per week	> 40% of course time	> 1 per week

Why do you think the changes in these courses led to greater student achievement?

Come up with a hypothesis for at least 2 that is 10 words or less.

2 minutes

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Why did 'increased structure' increase student performance?

We see hints from a classroom survey:

- Administered survey in one semester of low structure and three semesters of increased structure.

Survey focused on course related behaviors and attitudes:

- How students allocate time outside of class
- Perception of classroom climate
- Value students saw in class

Kelly Hogan facilitating her class

CBE—Life Sciences Education
Vol. 13, 453–468, Fall 2014

Article

Getting Under the Hood: How and for Whom Does Increasing Course Structure Work?

Sarah L. Eddy* and Kelly A. Hogan†

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

How did 'increased structure' increase student performance?

All students:

- 2.6 times more likely to spend more hours studying a week for course.
- 2 times more likely to read textbook before coming to class.
- 2 times more likely to see class as a community.

Specifically Black students:

- More likely to participate in class (White students did not change).
- See more value in out of class work than White Students.

Kelly Hogan facilitating her class

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Vol. 13, 453–468, Fall 2014

Article

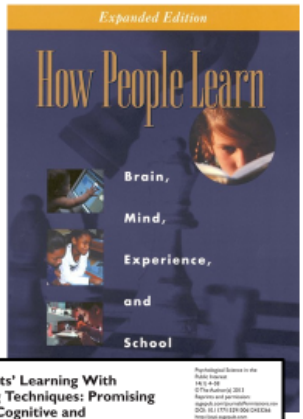
Getting Under the Hood: How and for Whom Does Increasing Course Structure Work?

Sarah L. Eddy* and Kelly A. Hogan†

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Hypothesis 1: Structures course so students employ best practices for learning.

- **Required Preparatory and Review assignments:**
  - Distributed learning vs. cramming
  - Testing effect
- **In class practice:**
  - Elaborative interrogation and Self-explaining
    - Students explain to themselves/their group in their own words why something is true when answering questions



Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology

John Dunlosky[1], Katherine A. Rawson[1], Elizabeth J. Marsh[2], Mitchell J. Nathan[3], and Daniel T. Willingham[4]

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Other increased structure replications fail to reduce performance gaps:

Comprehensive University in Midwest Replication:

- High Structure (*modified*)
- 4% gains for all students
- No impact on Black/White exam performance gap
- *Caveat*: Did reduce failure rate gap

Community College in PNW Replication:

- Moderate structure
- 3.7% gains for all students
- No impact on achievement gap

Casper, Eddy et al., in prep
Pape-Lindstrom, Eddy et al., in prep

HOW DOES ACTIVE LEARNING PRODUCE OUTCOMES?

Hypothesis 2: Creates a climate more conducive to risk taking which is important for learning.

Norms: implementations of active learning can establish a norm of 'sense making' rather than 'answer-making' (Turpen and Finkelstein 2009)

Relationships: Student perception of their relationship to the instructor, and their classmates can impact outcomes:

- Feeling the instructor cares about students increases how much student enjoys subject and how much they learn (Ellis, 2000; 2004; Goodboy & Myers, 2008)
- When students believe the instructor believes they can improve they are more motivated and their performance increases (Good et al. 2012; Cohen 1999)

Climate may be particularly important for students from historically underserved populations.

OUTLINE

What is Discipline Based Education Research?

What is the evidence for active learning?

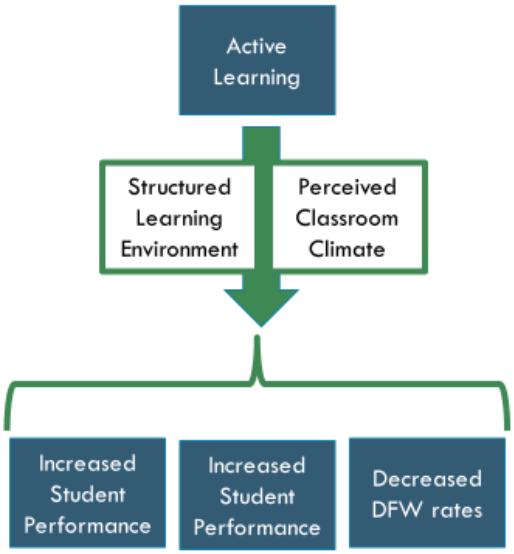
- Increases student performance by ½ SD (~6%)
- Decreases failure rates by 12%

Can active learning also reduce achievement gaps between student groups?

- Decreases gap between Black and White students
- Closes gap between first- and continuing generation students

How does active learning produce these outcomes?

- Structured Learning Environment that matches best practices for how people learn
- Classroom climate where students feel safe to focus on learning



THANK YOU AND QUESTIONS

Thank you to:

- The students and instructors who agreed to participate in these studies.
- Collaborators on **Gender Projects**:
  - Sara Brownell, Bio Educ, Arizona State Univ
  - Mary Pat Wenderoth, Bio Educ, Univ of Washington (UW)
  - Dan Grunspan, Anthropology, UW
  - Steve Goodreau, Anthropology, UW
- Collaborators on **Values Affirmation** project:
  - Hannah Jordt, Biology, UW
  - Scott Freeman, Bio Educ, UW
- Collaborator on **Persistence Patterns Across STEM disciplines**:
  - Erin Dolan, Bio Educ, Univ Georgia
- Collaborators on **student motivation** projects:
  - Lisa Corwin, Bio Educ, UC Boulder
  - Mark Graham, Educ Psych, Yale
  - Melissa Aikens, Bio Educ, Univ New Hampshire
  - Chris Runyon, Bio Educ, UT Austin
- Collaborators on **Active Learning in introductory Biology** projects:
  - Pam Pape-Lindstrom, Biology, Everrett Community College
  - Anne Casper, Biology, Eastern Michigan University
  - Bill Hoese, Biology, Cal State Fullerton
  - Carol Pollock, Bio Educ, University of British Columbia
  - Jerry Timbrook, Quantitative Educ Psych, University of Nebraska-Lincoln
  - Alison Crowe, Bio Educ, UW
  - Ben Wiggins, Educ, UW

METHODS: A QUANTITATIVE REVIEW OF THE LITERATURE

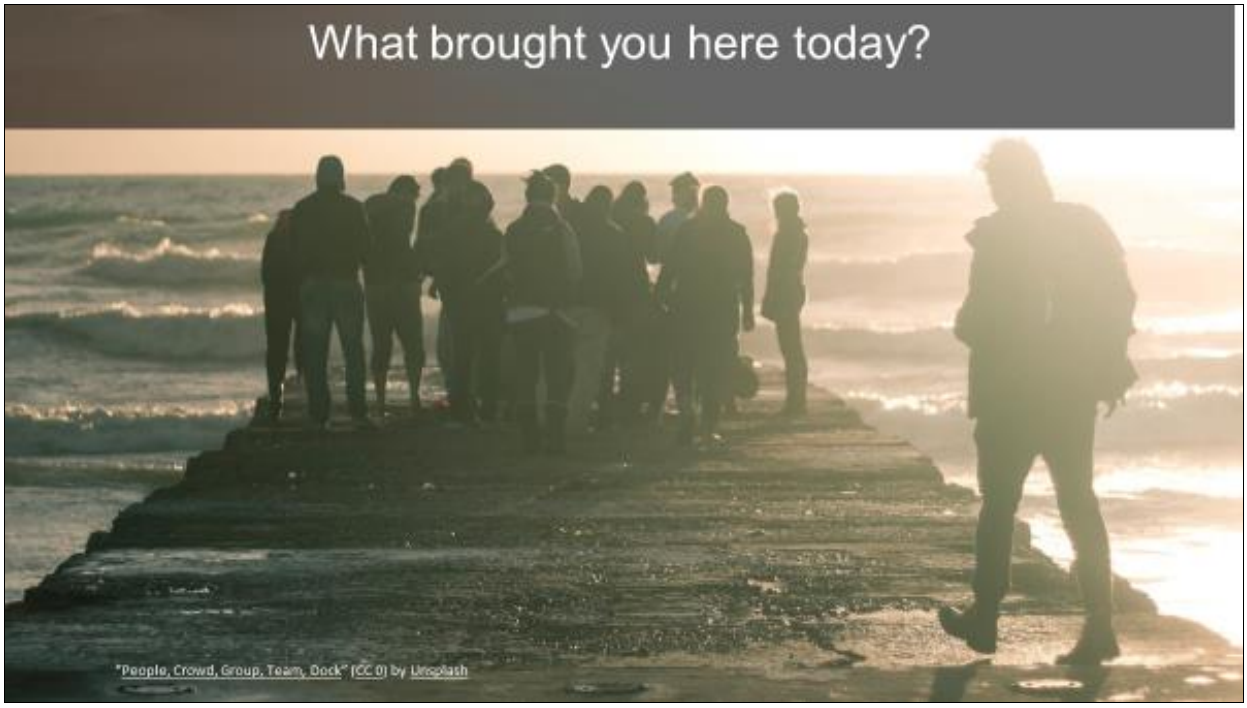
Meta-analysis: a quantitative statistical analysis of separate but similar studies in order to test the pooled data for statistical significance.

- 7 criteria for inclusion of a study:

1. Contrast any active learning intervention with traditional lecturing (same class and institution).
2. Occurred in a *regularly scheduled course* for undergrads.
3. Involve changes in the conduct of *class sessions* (or recitation/discussion).
4. Involved a course in Astronomy, Bio, Chem, CompSci, Engineering, Geo, Math, Physics, Psych, Stats.
5. Included data on some aspect of academic *performance*—exam/concept inventory scores or failure rates (DFW).
6. If measure achievement: assessment equivalent in both treatments.
7. Presents data necessary to compute test statistic for meta-analysis.

Appendix B: Finding, Using, and Remixing Open Resources for your Courses.

Presenter: Jonathan Verrett – UBC Vancouver, Michelle Lamberson – UBC Okanagan, Sajni Lacey – UBC Okanagan



More open

David Wiley, 5 "R's"

- Reuse
- Revise
- Remix
- Retain
- Redistribute

http://www.opencontent.org/definition/

Open educational resources are educational materials (e.g., course textbooks, research articles, videos, assessments, simulations, etc.) that are either (a) licensed under an open copyright license (e.g., Creative Commons) or (b) in the public domain.

Wiley & Green, 2012

WeBWorK

Entered	Answer Preview	Result
2*tan(2*a*x+C)	$2\tan(2ax + C)$	correct

The answer above is correct.

(1 point) Solve the differential equation

$$\frac{dR}{dx} = a(R^2 + 4).$$

Assume a is a non-zero constant, and use C for any constant of integration that you may have in your answer.

$R =$ 2tan(2ax+C)

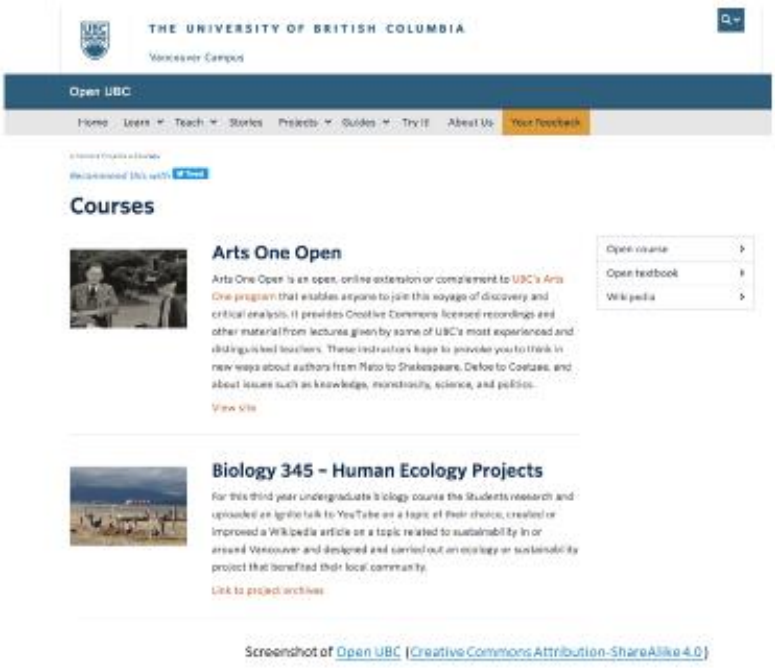
Solution:

"ExampleWebWorkProblem.png" (GNU Free Documentation Licence 1.2) by Geoff Goehle

Wikipedia

Screenshot of WikiPedia: WikiProject Murder Madness and Mayhem (Creative Commons Attribution-ShareAlike License)

Wikipedia



Screenshot of Open UBC (Creative Commons Attribution-ShareAlike 4.0)

Open Textbooks

"Open Textbooks Sticker" by BCcampus is licensed as CC BY 4.0

Finding your own OER

Form a group of 2 with a colleague in a similar discipline

- Try to have at least one computer for searching.

Finding your own OER

Form a group of 2 with a colleague in a similar discipline.

- Try to have at least one computer for searching.

Search for an open resource you might like to implement in a course you teach.
This could be:
- An assignment
- A textbook
- An activity...

Questions to consider

1. What do you like about your current course resources or teaching practices? What are the necessities for your students? In other words, what would you like to keep in your course?
2. What do you dislike about your current course resources or practices? List everything that you do not like.
3. If the answer to an instructional problem that you are trying to solve is at least in part implementing an open education resource or open teaching practice, how would you measure your success?
4. *Bonus Question:* What could your students do to contribute to your course? In other words, do you have an assignment where students could create resources for your future students or broader community?

Resources

1. Library Resources - guides.library.ubc.ca/open_education

1. Copyright - Open Course & Educational Resource Guidelines

2. Teaching and Learning Centres -open.ubc.ca

3. BC Campus - bccampus.ca

Appendix C: How Teaching Practices Influence Student Mental Health and Wellbeing.

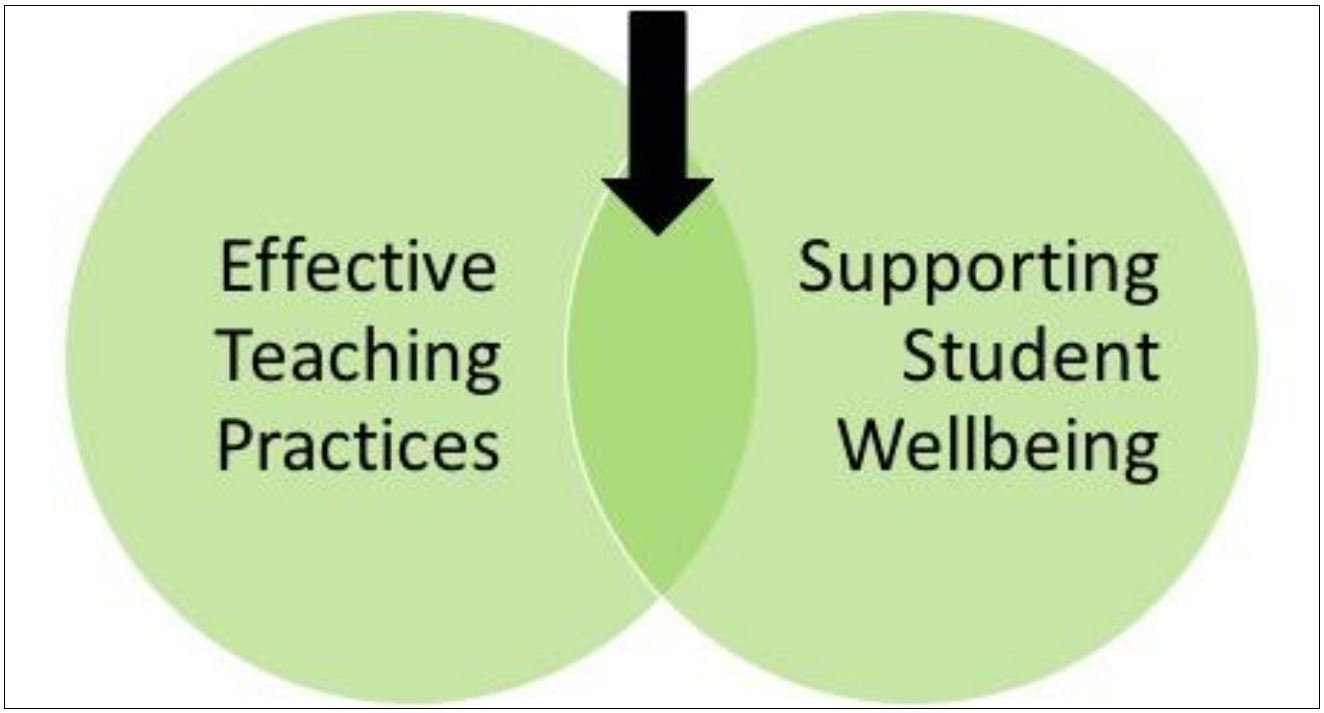
Presenter: Michael Lee – UBC Vancouver, Patty Hambler – UBC Vancouver, Steven Barnes – UBC Vancouver, Karen Smith – UBC Vancouver, Diana Jung – UBC Vancouver

Project Overview:

Identifying the influence of teaching practices on undergraduate students' mental health and wellbeing in the Faculties of Arts and Science

Click here to watch to watch the "Wellbeing and learning environments in higher education" video created by UBC Wellbeing.

Studies have indicated that mental health and wellbeing are connected to a student's ability to learn (Eisenberg, Hunt, & Speer, 2013; Keyes et al., 2012; Martin, 2010). Evidence also shows that different teaching practices affect student learning outcomes (Dennison, Gruber, & Vrbsky, 2010; Moulding, 2010; Svinicki & McKeachie, 2014). However, to date, it remains unknown whether teaching practices influence post-secondary students' mental health and wellbeing and if so, how. This TLEF- funded project seeks to identify teaching practices that are effective at both promoting effective learning and supporting student wellbeing.



Year 1 of the project (2015-16) focused on data collection and analysis; year 2 of the project (2016-17) focuses on creating and sharing professional development resources for instructors.

Like to read about our published paper on this project:

Lane, K., Teng, M. Y., Barnes, S. J., Moore, K., Smith, K., & Lee, M. (2018). Using Appreciative Inquiry to Understand the Role of Teaching Practices in Student Well-being at a Research-Intensive University. The Canadian Journal for the Scholarship of Teaching and Learning, 9 (2). Retrieved from https://ir.lib.uwo.ca/cjsotl_rcacea/vol9/iss2/10