

15TH ANNUAL UNIVERSITY OF WATERLOO TEACHING AND LEARNING CONFERENCE

Sparking and Sustaining Engagement

WEDNESDAY

**MAY
01
2024**

THURSDAY

**MAY
02
2024**

KEYNOTE

FOSTERING EQUITABLE ENGAGED LEARNING IN AND BEYOND THE CLASSROOM



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Wednesday, May 01, 2024

Concurrent Sessions (100): Wednesday, May 01 (9:30am – 10:30am ET)

Session 101: Workshop - Set the Tone: Create an Inclusive First Lecture *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Jennifer Ellingham, Mechanical and Mechatronics Engineering, University of Waterloo

Carol Hulls, Mechanical and Mechatronics Engineering, University of Waterloo

Jane Russwurm, Writing and Communication Centre, University of Waterloo

“Increased capacity at Canadian universities to integrate equity, diversity and inclusion in their teaching, research and governance” is required by Universities Canada’s federal action plan [1]. In a university classroom, a student’s sense of belonging and experience of inclusivity can be created in the first lecture when expectations are set for the term [2]. As an instructor, numerous options exist for fostering a sense of belonging in the classroom [2]-[5], such as those outlined in University of Waterloo Centre for Teaching Excellence tip sheets for inclusive teaching and learning practices [5] and related workshops. However, the long “to do” list can be quite time consuming for an instructor to implement (and initially intimidating). Whether for the upcoming Spring term or an early Fall term draft, this workshop is intended to provide instructors with a shortcut to help create an inclusive first lecture that can set the desired tone for the term.

During this online workshop, you will create a course-specific first lecture draft from materials provided. These materials consolidate recommendations for inclusivity and include resources for where information can be found. For example, links to lists of accessible washrooms and multi-faith spaces on campus will be provided to help you find the location(s) nearest your classroom(s). As you work through the workshop material, you can choose what material to include or remove material as appropriate for your class setting and teaching style. The intent is for you to have a starting point to create a draft first lecture. We have created the “to do” list; your task will be to consider each item/ topic in your context (i.e., Will [this topic/ idea] fit into my [classroom/ teaching style]? If so, which of the provided resource(s) should I use to find the information I need?).

Takeaways:

- Use of materials and practices to foster student sense of belonging and classroom inclusivity in a first lecture can carry the benefits throughout the course.
- A shortcut list of practices for instructors as a starting point can accelerate the decision making and facilitate customizing for instructor’s teaching style.

References:

- Universities Canada. “Action plan on equity, diversity and inclusion.” univcan.ca. Accessed: Nov. 20, 2023. [Online.] Available: <https://www.univcan.ca/priorities/action-plan-equity-diversity-inclusion/>
- University of Waterloo Centre for Teaching Excellence. “Early Engagement Quick Tips (EEQT).” Accessed: Jan. 18, 2024. [Online.] <https://uwaterloo.ca/centre-for-teaching-excellence/catalogs/tip-sheets/early-engagement-quick-tips-eeqt>
- University of Waterloo. “Accessibility at Waterloo: Everyday accessibility tips for the workplace,” Accessed: Jan. 18, 2024. [Online.] <https://uwaterloo.ca/accessibility/guides-and-resources/accessibility-tips>

- Ontario's Universities: Accessible Campus. "Writing a Course Syllabus." Accessed: Jan. 18, 2024. [Online.] <https://accessiblecampus.ca/tools-resources/educators-tool-kit/course-planning/writing-a-course-syllabus/>
- University of Waterloo Centre for Teaching Excellence. "Tip Sheets: Inclusive Teaching and Learning." Accessed: Jan. 18, 2024. [Online.] <https://uwaterloo.ca/centre-for-teaching-excellence/catalogs/tip-sheets/category/inclusive-teaching-and-learning>

Session 102: Workshop - Online Seminar-Based Small-Sized STEM Graduate Courses: A Novel Pathway to Engage Student Interest and Empower Tomorrow's Generation *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Robin Cohen, School of Computer Science, University of Waterloo

Gaurav Sahu, School of Computer Science, University of Waterloo

Liam Hebert, School of Computer Science, University of Waterloo

Ryan Tennant, Systems Design Engineering, University of Waterloo

In this workshop, we begin with an overview of a course offered in uWaterloo's School of Computer Science Fall 2023, one that was delivered entirely online and which provided opportunities for students to do paper presentations in real-time, project presentations pre-recorded, and on-the-spot groupwork presentation of original ideas created through class brainstorming. The course was on the socially-relevant topic of trustworthy Artificial Intelligence. We advocate for additional opportunities for learning which emulate the best practices of this course. We also introduce some students from the course, to share their perspectives. Workshop attendees will get to experience a sample presentation and asked to complete a feedback sheet (one avenue for engagement used in the class). We will discuss afterwards the value of these teaching and learning experiences, towards next steps. We highlight how this course in particular enabled diverse participation (those unable to travel, coping with illness, challenged with family obligations). We also comment on the value of brainstorming in breakout rooms with instructor oversight and the integration of guest lectures from experts in far-off locations. We also discuss how we structured the course to enable students to still feel part of a social community and how awareness of the need for skillsets fostered in this course made those enrolled committed to participate, working toward improving talent perceived as vital for academia and industry (reacting to others and delivering effective talks in virtual communities). Attendees will experience, within the one-hour timeframe, the challenge of being a valued online community member. This workshop is the outgrowth of a LITE grant and participation from CEL, CUT, CTE and the Writing Centre has been secured; this will assist in enhancing the learning experience of attendees.

Takeaways:

- Insights into how to foster engagement and learning in fully-online graduate level courses.
- Insights into the value of supporting online learning experiences at uWaterloo
- Insights into novel directions for enhancing learning experiences of graduate students in STEM courses (improving skills in presentation, experience in being effective virtual participants)

References:

- Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112. <https://doi.org/10.3102/003465430298487>
- Kuzma, J. (2011). Using Online Technology to Enhance Student Presentation Skills. *Worcester Journal of Learning and Teaching* 5. https://www.researchgate.net/publication/228762077_Using_Online_Technology_to_Enhance_Student_Presentation_Skills

Session 103: Panel - Internal and External Collaborations Create Enhanced Engagement in Teaching and Learning for all Stakeholders – A Win-Win Scenario in a New Undergraduate Course in Public Health Sciences

Jennifer Yessis, School of Public Health Sciences, University of Waterloo

Diane Williams, School of Public Health Sciences, University of Waterloo

Erin Hogan, United College, University of Waterloo

Tania Del Matto, United College, University of Waterloo

Kate Kennedy, Centre for Career Development, University of Waterloo

Anna Wright, Innovation Specialist at KidsAbility

Daniella Sanfilippo, School of Public Health Sciences, University of Waterloo

This panel will describe how both internal and external collaborations in the development of a new required course in the School of Public Health Sciences at University of Waterloo offered students an opportunity for experiential learning. Panelists include co-instructors, staff from GreenHouse and Centre for Career Development, KidsAbility staff member (external partner), and a student who took the course. The presenters will illustrate how this opportunity motivated and engaged students who worked in groups to prepare a solution for their real-world health challenge. Panelists will also explain how this co-design experience enriched their passion for teaching and learning.

Participatory design refers to a collaboration that may include those external to the university as well, working to design and develop curriculum (Bovill 2020). In the development of HLTH 480, Competencies in Health, co-instructors from the School of Public Health Sciences collaborated with United College's GreenHouse, a social impact incubator, the Centre for Career Development (CDD) at University of Waterloo, and eight health organizations. Each collaborator in this design process will describe their role in the course design and development.

In this course, students, guided by course instructors, incubator and career development staff, engaged in reflections about their development throughout their undergraduate degree as well as a design sprint including social innovation challenges identified by health organizations. Students were supported by workshops in problem definition, collaboration, stakeholder engagement, ideation, prototyping and pitching as they actively engaged in understanding their social innovation challenge and developed solutions to pitch to their organization.

Panelists will provide context about the course goals within the School of Public Health Sciences undergraduate curriculum and how the health design sprint was integrated into the course content.

Panelists will also comment on how the course design influenced stakeholder engagement in teaching and learning.

Takeaways:

Session attendees will learn how collaboration:

- with both internal and external organizations can enhance teaching and learning.
- can support instructors in providing experiential opportunities in the classroom.
- can support engagement in important health challenges of external organizations.
- Introduces students to the benefits and skills of networking and cross-collaboration to
- jumpstart their careers post-graduation.

References:

- Bovill, C. Co-creation in learning and teaching: the case for a whole-class approach in higher education. *High Educ* 79, 1023–1037 (2020). <https://doi.org/10.1007/s10734-019-00453>

Session 104: Panel - Flipping the Table! Enhancing Student Engagement with a Flipped Classroom Approach

Scott Campbell, Centre for Society, Tech & Values, University of Waterloo

Brandon J. DeHart, Mechanical and Mechatronics Engineering, University of Waterloo

Heidi Engelhardt, Biology, University of Waterloo

Sarah Meunier, Chemical Engineering, University of Waterloo

Diana Skrzydlo, Statistics & Actuarial Science, University of Waterloo

The Blended Learning Initiative in 2021-22 encouraged instructors to explore the benefits of combining in-person and online instruction techniques in a single course. There are many ways to do this, including the “Flipped Classroom” approach, where course content is delivered to students outside of class time via videos or readings, and class time is spent actively engaging with the material. Several iterations of CTE’s “From Remote to Flipped” training workshop helped instructors design their flipped classrooms effectively, and a Community of Practice of instructors using this modality was filled with animated discussion among instructors across all levels and disciplines.

This panel will highlight the experiences, both positive and negative, of instructors who have taught in the flipped classroom format within the last two years. They will discuss how to ensure student accountability for out-of-class material, ideas for getting buy-in from students, structural issues, pitfalls to avoid, and how to decide whether this mode of instruction is right for a given course context. For anyone curious about teaching in a blended or flipped format, we encourage you to attend and ask the panelists questions of your own.

Takeaways:

- It’s important to have a mechanism to make sure students are keeping up with the material, such as a quiz before or during the in-person sessions.
- To help students embrace the format, discuss the benefits of online learning and the benefits of in-person learning – and how flipped/blended enables the benefits of both.
- The UW registrar’s office has a new course type BLND that you can use to do custom scheduling, and there are flexible learning classrooms on campus you can request.

References:

- McGee, P. & Reis, A. (2012). Blended Course Design: A Synthesis of Best Practices. *Journal of Asynchronous Learning Networks*, 16(4), 7-22.
- The Flipped Classroom: A Brief, Brief History, by Bates, J. E., Almekdash, H., & Gilchrest-Dunnam, M. J. (2016).
- McKeachie, William and Marilla Svinicki (eds.), *McKeachie’s Teaching Tips: Strategies, Research, and Theory for College and University Teachers*, College Teaching Series, Florence: Cengage Learning, 2006.
- Barkley, E. F., Cross, K. P., & Major, C.H. (2005). *Collaborative Learning Techniques*. San Francisco, CA: Jossey-Bass.
- Wallace, Michael L, Joshua D Walker, Anne M Braseby, and Michael S Sweet. “Now, What Happens During Class?’ Using Team-Based Learning to Optimize the Role of Expertise Within the Flipped Classroom.” *Journal on Excellence in College Teaching* 25, no. 3 & 4 (2014): 253–73.

Concurrent Sessions (200): Wednesday, May 01 (10:45am – 11:45am ET)

Session 201: Workshop - How Do I Know if my Students are Engaged if They're Not Coming to Class?

Christine Zaza, Human Resources, Centre for Teaching Excellence

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

Class attendance and student engagement are often perceived to have a strong correlation – the assumption is that if students are coming to class, they must be engaged. But how can you tell if students are engaged? Concern over student absenteeism, while not a new phenomenon, has resurfaced within the context of a “post-pandemic” world, with many instructors observing sparse classrooms. This heightened focus on attendance has caused many instructors to incorporate an attendance and participation grade into their assessment structure, even those who once felt that giving grades for attendance was an “anathema” (Wyatt, 2023). Assigning a grade for participation is a complex task as there is no singular formula for measuring a student’s engagement, and further, there exists no singular definition of engagement (Li & Xue, 2023). Grading participation also raises questions about inclusivity and essential requirements – in what ways does engagement manifest in the course learning outcomes? If engagement is not an essential outcome, does it need to be measured and graded? What assumptions do our definitions of engagement make about students? Can we accurately measure student engagement?

In this workshop, we will discuss these questions as we describe and model inclusive engagement strategies. Participants will have the opportunity to experience some of these strategies during the workshop. By the end of the workshop, participants will be able to describe a variety of inclusive engagement strategies and consider how to apply them in their own teaching and learning contexts.

Takeaways:

- Traditional ways of measuring student engagement can lead to biased and inaccurate conclusions about students.
- The case for not grading student engagement is based on several factors, including the complexities of accurately measuring engagement and the consideration of course level learning outcomes and essential academic requirements.

References:

- CCI Research Inc. (2009). *Measures of Student Engagement in Postsecondary Education: Theoretical Basis and Applicability to Ontario’s Colleges*. Toronto: Higher Education Quality Council of Ontario.
- Kuh, G. D. (2001). Assessing what really matters to student learning. *Change*, 33(3), 10-18.
- Li, J., & Xue, E. (2023). Dynamic interaction between student learning behaviour and learning environment: Meta-analysis of student engagement and its influencing factors. *Behavioral Sciences*, 13(1), 59. doi:10.3390/bs13010059
- Norlock, K. J. (2016). Grading (anxious and silent) participation: Assessing student attendance and engagement with short papers on a “question for consideration.” *Teaching Philosophy*, 39(4), 483-505. doi: 10.5840/teachphil201612259
- Rocca, K. A. (2010). Student participation in the college classroom: An extended multidisciplinary literature review. *Communication education*, 59(2), 185-213. doi:10.1080/03634520903505936
- Wyatt, P. (2023). Encouraging student attendance and engagement in lectures & workshops in the pre- and post-Covid world. *Chimia*, 77(10), 663-667. doi.org/10.2533/chimia.2023.663

Session 202: Panel - Fostering Engagement in Large Engineering Classes

Andrea Atkins, Civil and Environmental Engineering, University of Waterloo

Charbel Azzi, Systems Design Engineering, University of Waterloo

Allyson Giannikouris, Mechanical and Mechatronics Engineering, University of Waterloo

Jeff Zarnett, Electrical and Computer Engineering, University of Waterloo

As lecturers in the faculty of engineering, we often teach large classes, around 80 to 150 students at a time. Many of the modern best practices for engagement and experiential learning do not scale well to classes of this size. We represent four different departments and teach classes that vary in the types and frequency of assessment, but are all high enrolment. We will share our expertise on how to foster engagement and inclusion in classes of this size.

Assessment strategies take center stage. We will showcase adaptable evaluation methods that match the program's accreditation standards to both increase student engagement and achievement of the course's intended learning outcomes. We will draw on our collective expertise and discuss the strategies we have tried so far, reflect on what we have learned, and what we would do in the future.

Equity and inclusivity will be important themes, with emphasis on our use of inclusive teaching practices like Universal Design for Learning. We see engagement and inclusivity as inextricably linked.

Join us as we discuss designing engaging and inclusive courses with large student enrollments. Gain insights from our varied experiences and strategies to apply to your courses!

Takeaways:

- Some strategies for engagement in large classes.
- How inclusivity and engagement are linked in large classes.

Session 203: Workshop - REACH: Research, disEngagement, Assessment, Control, & cHOice

Cynthia Korpan, University of Victoria

Tatiana Gounko, University of Victoria

Barbara Clearihue, University of Victoria

Tamara Gonçalves, University of Victoria

Lucie Kotěšovská, University of Victoria

Xiaopei Peng, University of Victoria

The impact of engaging students is well documented in the literature. For example, research shows that it increases retention (Kuh et al., 2006), academic achievement (Finn & Zimmer, 2012), and a sense of belonging (Bentrim & Henning, 2022). Using a two-year graduate certificate in learning and teaching in higher education as the frame for this session, instructors, and graduates of the certificate, all teaching in different disciplines, share how they use the metaphor of *reach* as their approach to engagement.

Reach implies that the instructor is responsible for meeting the student where they are at and bringing them in to engage. When thinking about student engagement through *reach*, we ask the following questions:

- What is the impact of intentional disengagement instructional strategies on student engagement?
- What mechanisms can be put in place to reach students with summative assessment?
- What happens when you put students in control of their own engagement?
- Further, how does choice in course design reach students?
- Overall, how are these strategies sustainable?

Presenters will share their examples in practice, after which participants will have the opportunity to interact with each presenter in break out rooms for further discussion about the theoretical underpinnings of their practice. By the end of this session, participants will recognize the following:

- Benefits of reaching students where they are at,
- Strategies they can use to reach students,
- Outcomes of using reach as an approach to engagement, and
- How the REACH approach can be used in any discipline.

Takeaways:

- Reach is an effective metaphor for framing engagement, by reaching students where they are, instructors garner deeper engagement from students
- UDL, active learning, real-world examples, and choice in assessment are just a few of the strategies you can use to reach students, and
- Using reach as an approach to engagement sparks and sustains engagement.

References:

- Bentrim, E. M., & Henning, G. W. (Eds.). (2022). *The Impact of a Sense of Belonging in College: Implications for Student Persistence, Retention, and Success*. Stylus Publishing.
- Finn, J., & Zimmer, K. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement*, (pp. 97–131). Boston: Springer US. https://doi.org/10.1007/978-1-4614-2018-7_5

- Kuh, G. D., J. Kinzie, J. A. Buckley, B. K. Bridges, & J. C. Hayek. (2006). *What matters to student success: A review of the literature*. Washington, DC: National Postsecondary Education Cooperative.

Session 204: Workshop - Unlocking the Multilingual Classroom: Effective Teaching Strategies

Karmvir Padda, Centre for Teaching Excellence, Department of Sociology, University of Waterloo

In today's interconnected and globalized society, classrooms have become a melting pot of diverse linguistic backgrounds. These multicultural spaces offer both immense potential and distinct challenges for educators (Bensalem, 2019). This workshop aims to guide instructors (post-secondary) and teaching assistants through these aspects, equipping them to excel in such environments. Addressing the needs of a diverse student population, the workshop emphasizes strategies to bolster multilingual learners, offering insights into their unique challenges and practical solutions for fostering an inclusive learning atmosphere. The overall aim of this workshop is to help instructors and TAs understand how to promote equity for multilingual learners. This includes recognizing the cultural and linguistic identities, backgrounds, and experiences of students as valuable sources of knowledge (Dinara, 2023, p. 278).

Learning objectives:

- Understand the cognitive and practical benefits of multilingualism, fostering an appreciation for diverse languages and cultures.
- Explore strategies to overcome language barriers, and promote inclusive communication, by using visuals, hands-on activities, and collaborative tasks.
- Implement interactive methods like multilingual storytelling, tailored teaching approaches, and individualized support for multilingual learners' academic and social success.
- Promote cultural and linguistic diversity by incorporating cultural appreciation into the curriculum, making it an essential component of the learning journey.

Takeaways:

With an increasingly diverse student population, it is more important than ever for educators to develop effective teaching strategies that support multilingual learners. This workshop aims to provide insights into the unique challenges faced by multilingual students and educators, and offer practical solutions for creating an inclusive and supportive learning environment. By fostering an appreciation for diverse languages and cultures, promoting inclusive communication, and implementing interactive activities, educators can enhance language skills, cross-cultural understanding, and provide support for academic and social success.

References:

- Bensalem, E. (2019). Multilingualism and foreign language anxiety: The case of Saudi EFL learners. *Learning and Teaching in Higher Education: Gulf Perspectives*, 15(2), 47–60. <https://doi.org/10.18538/lthe.v15.n2.314>
- Botes, E., Dewaele, J.-M., & Greiff, S. (2020). The Power to Improve: Effects of Multilingualism and Perceived Proficiency on Enjoyment and Anxiety in Foreign Language Learning. *European Journal of Applied Linguistics*, 8(2), 279–306. <https://doi.org/10.1515/eujal-2020-0003>
- Dinara, Z. (2023). Multilingual Approaches and Their Strategies To Teaching English As A Foreign Language. *IFTE Uzbekistan*, 277–281.
- Idris, A. M. S., Adliyah, A., & Alfina, S. (2020). Multilingual Interaction In Classroom Context. *ETERNAL (English, Teaching, Learning, and Research Journal)*, 6(2), 381. <https://doi.org/10.24252/Eternal.V62.2020.A13>
- Jessner, U., Allgäuer-Hackl, E., & Hofer, B. (2015). Emerging Multilingual Awareness in Educational Contexts: From Theory to Practice. *The Canadian Modern Language Review*, 71(3), 157–182. <https://doi.org/10.3138/cmlr.2746>

- Jessner, U., & Cenoz, J. (2019). Teaching English as a Third Language. In X. Gao (Ed.), *Second Handbook of English Language Teaching* (pp. 155–172). Springer International Publishing. https://doi.org/10.1007/978-3-030-02899-2_9
- Kerekes, J., Rajendram, S., Adjetej-Nii Owoo, M., & Zhang, Y. (2021). Teachers' Takes on Supporting Multilingual Learners in K–12 Classrooms in Ontario. *TESL Canada Journal*, 38(1), 1–27. <https://doi.org/10.18806/tesl.v38i1.136>

Concurrent Sessions (300): Wednesday, May 01 (1:00pm – 2:00pm ET)

Session 301: Panel - Engaging Writers in the Context of Generative AI: Ideas from the Writing Centre

Clare Bermingham, Writing and Communication Centre, University of Waterloo

Christiano Choo, Science, University of Waterloo

Emma Dunn, Writing and Communication Centre, University of Waterloo

Mary Samson, Environment, University of Waterloo

Writing pedagogy and Writing Centre theory say that writing is a skill we continually improve and a personal practice requiring self-awareness and agency (North, 1984; Bean 2001; Gottschalk & Hjortshoj, 2004). Writing is also a means of “doing” in specific disciplines, a way of making and demonstrating knowledge (Carter 2007, p. 391). The WCC teaches people to make use of tools that meaningfully support their writing practices. Generative AI is likely to be such a tool for many. In particular, we know that university students are already using Generative AI, and so we guide them in using it to support their learning and development as writers and as students in their respective disciplines. In this panel, WCC staff who teach and coach students in different contexts, such as in classrooms, in one-to-one meetings, and through asynchronous learning resources, will describe the strategies and tools we use to engage students in their writing and learning journeys. Specifically, we will explain how we use Generative AI to develop teaching materials that engage students in instructional content, how we use a framework of “ethical and productive” to guide our conversations with students about their writing process in the Generative AI context, and how that framework also structures our learning resources on using Generative AI as a writer. In this panel, you will (1) understand how you can use the “ethical and productive” framework to make choices in your teaching related to Generative AI and guide students in making decisions about how to use the technology when writing, (2) be able to apply Generative AI to create engaging teaching materials, including exemplars and revision tools, and (3) learn strategies for talking about and recommending uses of Generative AI with student writers.

Takeaways:

- Generative AI can be used to engage students in the writing process, not replace the writing process.
- “Ethical and productive” is a useful framework for adopting Generative AI into a teaching praxis.
- Generative AI is a useful tool for instructors looking to create efficient and tailored learning materials.

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Session 302: Panel - Breaking Down Silos and (Mis)Conceptions: Engaging Instructors and Staff in Universal Design for Learning Approaches

Melissa Potwarka, Health Graduate Studies, University of Waterloo

Leah Foster, Campus Wellness Administration, University of Waterloo

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

Zara Raffety, Recreation & Leisure Studies, University of Waterloo

Jay Dolmage, English Language & Literature, University of Waterloo

Kelly Skinner, School of Public Health Sciences, University of Waterloo

Christine Zaza, Human Resources, University of Waterloo

To engage instructors in conversation about the link between Universal Design for Learning (UDL) and wellbeing, Campus Wellness developed a Community of Practice (CoP) in 2022. This work was inspired by the limited understanding of the impacts of UDL on student engagement and instructors (Al-Azawei et al., 2016; Henning et al., 2018) at University of Waterloo. UDL is often conceptualized in a siloed manner across disciplines and without consideration of the alignment or tensions with other inclusive pedagogical approaches (Fovet, 2020, 2021). CoPs have promising potential to engage instructors and develop knowledge, skills, and competencies by drawing on the diverse experiences and skills of those involved (Braithwaite et al., 2009; Hutson & Downs, 2015).

Through a series of interactive online sessions, this CoP has provided an important space for critical conversations among instructors and academic support staff about how inclusive pedagogy is practiced and identifying ‘places to start’ for implementing UDL for student engagement and wellbeing (Dolmage, 2015). We have discussed how to navigate challenges that arise when implementing UDL and how to balance the benefits with other facets of instructor and student wellbeing, which ultimately impacts engagement (Dolmage, 2017; Price, 2009; Konrad, 2021).

This interactive session is intended for people with all levels of knowledge and experience with UDL. Participants of this session will have the opportunity to:

- Learn some practical strategies for facilitating equitable, inclusive approaches to student engagement based on UDL.
- Learn about how the CoP has engaged instructors and staff to increase understanding and application of UDL.
- Identify ways to increase instructor and staff engagement with the CoP, especially among those who are new to UDL.
- This work is timely, given recent institutional commitments to learning environments, such as the tenure-track teaching streams and new senior-level leader positions focused on ways of learning and employee wellbeing.

Takeaways:

- Practical applications of UDL for student engagement, while addressing challenges and misconceptions of UDL.
- Understanding of how the CoP has engaged instructors and staff.
- Understanding of how to stay engaged with the CoP and UDL.

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Session 303: Panel - Stakeholder Café – Connecting Students with their Community Stakeholders – Experiences of Organizers and Participating Stakeholders *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Jennifer Howcroft, Systems Design Engineering, University of Waterloo

Kate Mercer, Library, University of Waterloo

Understanding and integrating stakeholder insights is important in engineering [1], [2], [3] and many other disciplines [4], [5], [6], [7]. However, enabling opportunities for students to engage with community stakeholders can be challenging due to academic, time and financial constraints [8] and student challenges [9]. In engineering, only a few case studies report on these activities [8], [9], [10], [11], [12], [13], [14] and best practices and an evidence-based approach are lacking [9]. In Fall 2023, supported by a LITE Seed grant, we implemented a multi-step student-stakeholder interaction model to support capstone teams with connecting to diverse biomedical stakeholders. This multi-stage event was intentionally designed to address known student challenges with student-stakeholder interactions by including capstone team applications, student-stakeholder matching, preparatory workshop, and finally the student-stakeholder conversations themselves. Using this model, 23 capstone teams across four programs at the University of Waterloo connected with 18 diverse biomedical stakeholders. In total, 44 conversations occurred during the Biomedical Stakeholder Café with each capstone team having one to three stakeholder conversations.

Student-stakeholder conversations were driven by the capstone teams. Teams received guidance and instruction during the preparatory workshop but developed their own goals and questions for the conversations, aligning with the conference theme of ‘student-centered approaches to engagement’. The stakeholders were all recruited from the local community, aligning with the conference theme ‘engaging communities’.

The panel will consist of the two event organizers and several participant stakeholders. Attendees will be given the opportunity to ask questions and it is our hope that these questions will drive the learning opportunities associated with the session. However, our expectation is that attendees will:

- Understand the student-stakeholder interaction model.
- Appreciate the potential learning value of implementing this model within their own units.
- Discover the benefit this model offers to stakeholders, in addition to students.

Takeaways:

- There is student interest and self-directed engagement in opportunities to connect with community stakeholders.
- Both students and stakeholders benefit from participating in student-stakeholder interaction opportunities.

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Session 304: Panel - What Could High PhD Student Engagement Look Like at Waterloo?

Nadine Fladd, Writing and Communication Centre, University of Waterloo

Monica Munaretto, Graduate Studies and Postdoctoral Affairs, University of Waterloo

Ashley Ryan, Graduate Studies and Postdoctoral Affairs, University of Waterloo

Svitlana Taraban-Gordon, Centre for Teaching Excellence, University of Waterloo

Karmvir Padda, Centre for Teaching Excellence, Department of Sociology, University of Waterloo

Kira Bruschke, Centre for Career Development, University of Waterloo

Stephanie Florence, Writing and Communication Centre, University of Waterloo

Research indicates that doctoral student needs fluctuate over the course of their programs as they navigate different milestones, challenges, achievements, and identities and many traditional methods of providing support no longer meet the needs of our diverse student populations. While high engagement with academic work and strong connections with supportive faculty members and campus support professionals improve graduate student outcomes, sparking and sustaining the engagement of this cohort, especially doctoral candidates, is increasingly difficult. This panel conversation will explore this phenomenon and attendees will learn how the campus community can support graduate students throughout all stages of their degree, improving their self-efficacy and supporting their autonomy. Panelists will discuss how graduate student needs evolve as they progress through their program milestones, and how this knowledge can inform supervisor and support staff approaches to increasing engagement. As representatives of a breadth of campus supports for graduate students, we will share what we have learned from our own work supporting graduate students as well as findings from recent research. Together, we will map what graduate student engagement can look like throughout a range of student pathways to their degrees. We will also provide insight into what has helped us engage students in non-credit learning opportunities and how some of the methods and modalities we have used can be adapted to the graduate student supervisory context. Attendees will have the opportunity to work through case examples with peers and the presenters.

Takeaways:

- Student needs and engagement will change over time based on a variety of factors, including the phase of study they are in and/or the evolution of their career aspirations.
- Graduate students benefit from staff and supervisor support in navigating the range of discrete support services and identifying which supports to access at which stages of their degrees.
- Participants will have the opportunity to reflect on how best to integrate research and best practices about graduate student engagement into their own supervisory practice.

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Concurrent Sessions (400): Wednesday, May 01 (2:15pm - 3:15pm ET)

Session 401: Workshop - Engaging Neurodivergent Students

Jennifer O'Brien, Accessibility Services, University of Waterloo

Christine Zaza, Human Resources, University of Waterloo

Despite being intellectually capable and committed to learning, many neurodivergent students struggle in academic environments that were designed by, and for, neurotypical people (Clouder et al., 2020; Hamilton & Petty, 2023). Neurotypical standards position specific human attributes and behaviors as being more valuable than others; as a result, several common engagement strategies may pose barriers for neurodivergent students.

Neurodiversity refers to the wide range of differences in the way people think, perceive, and interact with the world, and recognizes that these differences are an expected, naturally occurring aspect of human diversity. In the neurodiversity paradigm, engagement strategies should focus on designing for diversity and recognizing the importance of the fit between the learner and their learning context. (Hamilton & Petty, 2023).

Using the voices of lived experience (Shaw et al., 2023) and drawing on the literature (Clouder et al., 2020; Dwyer, et al., 2023; Hamilton & Petty, 2023) this workshop will center on two common forms of neurodivergence: autism and attention deficit hyperactivity disorder (ADHD). Through interactive activities we will identify common barriers and challenges for neurodivergent students, and their impact on academic engagement. Next, we will review recommended equitable engagement practices and discuss their potential current and future impact for neurodivergent students (Dwyer et al., 2023; Hamilton & Petty, 2023). Participants will leave this workshop with strategies and resources on practices that uncover the hidden curriculum and increase engagement and inclusivity for neurodivergent learners.

By the end of this session, participants will have gained an understanding of the relationships between neurodivergence and the student experience and be able to identify meaningful course design and instructional strategies that will enhance the learning experience for neurodivergent and neurotypical students.

Takeaways:

- The typical academic setting or classroom is designed for neurotypical students.
- Neurodivergent students experience increased barriers to accessing education.
- Reflecting on best practices to support neurodivergent students can encourage student academic success and remove unnecessary barriers.

References:

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Session 402: Panel - The One-Room Schoolhouse Reimagined: Cultivating Intergenerational Collaboration and Innovation on Campus

Tania Del Matto, United College, University of Waterloo

Lily Viggiano, United College, University of Waterloo

Jamieson Cox, Co-operative and Experiential Education, University of Waterloo

Khyati Nagar, Centre for Career Development, University of Waterloo

Justin Diner, Wilfrid Laurier University

Higher education institutions continue to be called upon to adjust and cater to the evolving student demographics and life experiences of an increasingly diverse student community. Educators must focus on supporting a mounting cohort of traditionally marginalized students and intersecting identities, while also emphasizing age inclusivity, a frequently overlooked element of diversity, equity, and inclusion (Finkelstein, 2021). Factors driving age inclusivity in higher education include changing demographics, longer working lifespans, a focus on engagement and well-being, and the growing need for trained individuals to support an aging population (The Gerontological Society of America, 2019). Amidst these factors, traditionally age-segregated universities and colleges are being called upon to evolve and serve students of all ages (Morrow-Howell et al., 2020).

How might we explore opportunities to pursue age-integrated learning and collaboration experiences at the University of Waterloo? Our presentation will provide insights into a collaboration between Cooperative and Experiential Education (CEE) at the University of Waterloo and GreenHouse (a social impact incubator) at United College. In fall 2023, CEE and GreenHouse teamed up to add an intergenerational layer to an existing design sprint program and invited participants from all generations to collaborate on social innovation challenges centred on climate action. The design sprint engaged 5 different generations including post-secondary students and midlife “Evolvers” to collaboratively tackle real-world climate issues, together with community stakeholders. The design sprint’s benefits include fostering lifelong learning; enabling powerful collaboration across generations and disciplines with multi-directional mentorship; making real change through the curation of immersive social innovation challenges within the community; and encouraging self-discovery and purpose exploration for all participants in ways that support their path for impact.

The panelists will cover lessons learned in recruitment, team formation, and creating community pathways; highlighting experiences from instructors, learners, and partners.

Takeaways:

- Learn how we can engage students about existential challenges like the climate crisis, while also empowering action through intergenerational collaboration.
- Gain insights into how we might design age-inclusive learning spaces for intergenerational collaboration.
- Acquire an understanding of what resonates with learners across diverse generational backgrounds.

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Session 403: Panel - Engaging with Sustainability in Curriculum

Abigail Loewen, Sustainability Office, University of Waterloo

Mathew Thijssen, Sustainability Office, University of Waterloo

Norah McRae, Co-operative and Experiential Education, University of Waterloo

Laura Deakin, Faculty of Science, University of Waterloo

Johanna Wandel, Faculty of Environment, University of Waterloo

David Ha, Faculty of Arts, University of Waterloo

Ceileigh McAllister, Faculty of Environment, University of Waterloo

As global sustainability impacts and transitions unfold, graduates will need core skills and discipline specific knowledge of climate change and sustainability if they are to be global citizens prepared to thrive in an age of rapid change^{1,2}. Sustainability is an interdisciplinary topic with emerging concerns that will affect all graduates. As a result, many disciplines are adapting sustainability knowledge, skills, and values into their programs in order to address future industry needs. The Sustainability Office, with the Teaching Innovation Incubator, have led the Integrating Sustainability into Undergraduate Programs of Study project to consider how curriculum offerings could be created and/or adapted to allow all students to develop foundational and discipline-specific understanding of sustainability. This is a highly collaborative, interdisciplinary project, supported by and engaging with students, instructors, departmental chairs, program directors, staff, and other faculty.

To better understand how students view engagement with sustainability and its relevance to their lives and careers, a survey of 386 randomly selected undergraduate students was conducted. 92% responded that they believe sustainability will affect their career to some extent in the short term and over 75% indicated that they would be interested in learning about sustainability. Students were most interested in seeing sustainability integrated into existing content, rather than separate content, particularly as their schedules are already full and they lack capacity to engage in new understanding the relevance of sustainability for undergraduate learners and needing to find ways to bring sustainability to them, a flexible framework was developed through which sustainability can be integrated into any program of study, as relevant. Additionally, the development and collection of resources to support this work formed a toolkit, including a collection of sustainability definitions to support departmental conversations, references to industry associations to form connections, information on approaches to integrate sustainability from modules to courses to program outcomes, and case study examples of departments at the University of Waterloo that have integrated sustainability into curriculum. This poster presentation will highlight these outcomes from the project, providing staff and faculty with information on the framework, connections to available supports on campus, resources available in the toolkit, and anticipated projects in the second year of this project two to connect with.

Takeaways:

- Understand how Sustainability integration in curriculum is beneficial for students and faculty, as it engages students with content in a unique way, deepens their understanding of the discipline, and prepares them for needs of the future.
- Increase familiarity with resources and supports available for the work of integrating sustainability in curriculum.

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Session 404: Panel - Developing Relationships with Teaching Assistants to Support Student Engagement

Taru Malhotra, Faculty of Engineering, University of Waterloo

Carolyn MacGregor, Systems Design Engineering, University of Waterloo

Richard Li, Centre for Teaching Excellence, University of Waterloo

Iman Basha, Systems Design Engineering, University of Waterloo

Johanna Pinargote Torres, Civil and Environmental Engineering, University of Waterloo

Literature on graduate Teaching Assistants (TAs) highlights the need to focus on TA Training. Without a structured TA training program, graduate TAs often feel they lack the skills to be successful, are not aware of effective teaching strategies, and may feel lonely if connection with other TAs is low (Camarao & Din, 2022; Joyce & Hassenfeldt, 2020; Marquis et al., 2020). Furthermore, without structured training opportunities, TAs may struggle to participate in teaching development courses in the absence of scheduled training time (Marquis et al., 2020)

To help future TAs develop their teaching and feedback skills, enhance motivation, and build confidence, recognized training strategies include active learning, peer feedback, observation feedback, and simulation-based scenarios (Baldwin & Orgill, 2019; Chiu & Corrigan, 2019; Flaherty & Overton, 2018; Geraets et al., 2021; Lang et al., 2020). Much of the research on TA training mainly focuses on developing TA-student interaction strategies with the goal of improving student engagement and experience. In this panel session, we will focus on the importance of building Instructor-TA relationships (typical mentoring) and TA-TA relationships (peer-mentoring) for building skills and confidence for TAs to better engage with students.

Our panel members include 1) instructors teaching courses with the help of Teaching Assistants 2) Graduate Teaching Assistants, and 3) Educational Developers. All panel members also form the instructional team of the Teaching Assistant Training program.

In this panel session, we speak with teaching assistants and instructors about their experiences building supportive instructional team relationships (e.g., Instructor-TA, TA-TA) and the perceived impacts those relationships have on student engagement in online courses and in the classroom. We will seek to engage the audience to broaden the sharing of experiences around TA mentoring and relationship building as keys to better student engagement within courses.

Takeaways:

- Recognize TAs as integral members of the instructional team who want to contribute in meaningful ways to supportive learning environments.
- Take time to build relationships, through direct conversations around roles and expectations and keep communication channels open.
- Provide time and space for TAs to build supportive teaching relationships with peers.

(Please note: A LITE grant awarded to (anonymous) was used to help investigation and redesign of the choice of deliverables available to graduate students enrolled in ExpecTations (mandatory TA training in the Faculty of Engineering). The topics of discussion covered in the proposed panel focus on the experiences of instructors and the TAs hired for ExpecTations as they worked together to foster student engagement. This is separate from the research question(s) explored as part of the LITE grant.)

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Thursday, May 02, 2024

Keynote: 8:30am - 10:00am ET

Fostering Equitable Engaged Learning In and Beyond the Classroom

Dr. Jessie Moore, Elon University

How do we help students develop their capacities as engaged learners who actively and intentionally participate in their own learning, not only at discrete moments but rather as an ongoing, lifelong activity? In this interactive keynote, we'll focus on three of the six key practices for fostering equitable engaged learning in and beyond the classroom (Moore, 2023), specifically: 1) facilitating professional relationships, 2) developing feedback cultures, and 3) promoting integration and transfer of knowledge and skills.

While universities often promote signature engaged learning experiences for their students (e.g., work-integrated learning, community-based learning, undergraduate research, culminating experiences, etc.), studies demonstrate that access and quality remain inequitable. In addition, surveys of recent university graduates suggest that many didn't encounter pedagogical practices in their coursework to help them develop as lifelong, engaged learners. In my six key practices framework, I offer strategies for embedding the practices across curricular and cocurricular experiences so that every student has multiple opportunities to encounter and practice them.

The three key practices we'll explore together spark engaged learning by centering students' experiences and building on them within our courses and other learning contexts. The key practices also sustain engaged learning by preparing students to adapt and apply their integrated knowledge and experiences as they continue their journeys through degree programs and professional careers.

My exploration of these three transformative practices draws on multi-institutional research and multi-disciplinary examples, supporting our collective efforts to foster engaged learning for all students, across our disciplinary contexts. Discover how we can empower students to become lifelong, engaged learners ready to bridge academic and real-world challenges in their local and global communities.

Concurrent Sessions (100): Thursday, May 02 (10:20am – 11:20am ET)

Session 101: Presentations

101a: Exploring the Potential of Immersive Technology in the Enhancement of Anatomy Education

Katelyn Wood, Western University

Sean McWatt, Western University

Paul Mensink, Western University

Anatomy education, by nature, can be difficult for students to learn and understand, highlighting the need for advanced teaching methods and a commitment to improve students' capacity for learning. The gold standard for anatomy education is largely considered to be cadaveric dissection and/or pro-section. However, cadavers are not readily available in all departments. The Faculty of Health Sciences at Western University does not have access to cadavers for student learning, so anatomy has traditionally been taught using 2D images, including textbooks and lecture slides, as well as 3D plastinated models. However, these can be unrealistic and degrade over time, and require a significant amount of intrinsic student motivation to learn.

Our study is exploring the use of augmented reality (AR) and 3D models (desktop access) for anatomy education. Through AR/3D model visualization, anatomical models can be displayed on a screen, appearing as though they are present within the immediate environment. This innovation holds significant promise for enhancing undergraduate education in anatomy. Our study aims to explore the benefits of using AR alongside digital 3D models and plastic anatomical models.

Previous research has shown that AR/3D model viewers can facilitate learning in this context; however, results thus far have been ambiguous. We investigated how AR/3D model visualization can improve students' engagement, motivation and learning within a large undergraduate anatomy class in the Faculty of Health Sciences. We also asked whether 3D model visualization is particularly effective for learning specific anatomical topics, such as the musculoskeletal system vs the viscera. Based on previous research and our initial pilot work, we believe that combining AR and 3D model visualization with traditional teaching methods can enhance students' learning and improve their engagement with the content

Takeaways:

- The addition of technology in an online undergraduate anatomy course changes the student experience and improves motivation to learn and content engagement.
- The addition of 3D model viewers in the anatomy laboratory requires careful consideration to ensure equality and the preservation of learning outcomes.

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101b: Generative Artificial Intelligence: The Future of Experiential Training in Pharmacy?

Jeff Nagge, School of Pharmacy, University of Waterloo

Generative Artificial Intelligence (AI) is a rapidly developing field with the potential to revolutionize healthcare training. Generative AI can be used to create immersive and engaging simulations that allow students and clinicians to practice their skills in a safe and controlled environment.

This presentation will demonstrate how the development of a virtual clinic powered by generative AI has replaced in-person experiential training in a course developed for undergraduate pharmacy students and healthcare professionals. Preliminary data will be shared indicating a similar degree of effectiveness between virtual and in-person experiential training. Attendees of this session will learn how generative AI can be used to create authentic simulations, and the benefits and limitations of using generative AI over traditional experiential training methods.

Learning objectives:

- Define generative AI and explain its potential to revolutionize healthcare training
- Identify specific ways that generative AI can be used to create immersive and engaging training simulations
- Discuss the benefits and limitations of using generative AI for experiential training over traditional methods

Takeaways:

- Generative AI has the potential to radically alter experiential healthcare education.
- The use of virtual clinics can address many barriers to offering standardized experiential learning opportunities.
- Ongoing research will identify the ideal topics for virtual training, and determine the optimal mix of virtual and traditional experiences.

References:

- Nagge J, Houle S, Killeen RM, Richard C, Lippens M. A blended learning course for prospective anticoagulation providers: evaluation and insights. Presented at the International Pharmaceutical Federation World Congress, Glasgow, Scotland. September 2018
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101c: Students React to Mycroft, a Course-Aligned, AI-Virtual Teaching Assistant (VTA)

Jialin Yang, School of Computer Science, University of Waterloo

Mike Cooper-Stachowsky, Electrical and Computer Engineering, University of Waterloo

Zille Huma Kamal, School of Computer Science, University of Waterloo

AI and computerized tutoring have been impacting the education system for decades [1],[3], and its influence continues to grow with the advancement of technology. We developed Mycroft, a Virtual Teaching Assistant (VTA) [2] that uses generative pre-trained transformers (GPT) to generate course aligned, guided responses to student inquiries about conceptual and programmatic concepts in the course, and broader project planning and management decisions for second-year courses in STEM. A unique feature of Mycroft is to administer zero-stake formative quizzes for students with immediate and constructive feedback. This instigates a cycle of practicing information retrieval in students and the immediate feedback enables making connections, simplifying complex concepts, and increasing implicit motivation for learning. This is monumental in fostering deep learning in students by offering the opportunity to reflect on concepts and clarify doubts, thereby increasing engagement with the course content and promoting students' preparedness for classrooms. Consequentially, creating a constructive teaching environment.

In our presentation, we will demonstrate the effectiveness of Mycroft in generating guided responses that are within the scope of the course and not simply solutions to a question on the assignment, such as those generated by today's AI tools. Instead, our VTA's responses are much more like human TA responses, that offer hints or review concepts necessary for the solutions. Through analysis of the anonymous logs of nearly 3000 separate interactions, we show the trend in student-VTA interactions[4]. Results indicate that the VTA was used throughout the course at times outside of regular office hours, indicating that the VTA provides accessible and convenient personalized support to students. We also identify trends in students' learning experience and reflect on improvements for the course content. Introducing Mycroft to our classrooms allowed us to enhance teaching and improve course personnel use, offering interactive learning within our classrooms.

Takeaways:

- Easily accessible and interactive mentoring: Opportunity to interact with a virtual teaching assistant (VTA) at any time increases availability and accessibility for course support. Interaction with Mycroft instead of AI tools, such as ChatGPT [1], promotes learning for students. Especially since Mycroft generates responses that are meant to instigate learning rather than simply spit solutions. The initial interactions between the VTA and students have been largely positive, which encourages its adoption into our classrooms. Students benefit from the VTA mostly during non-business hours, when help is most needed and least available. The instructional team's workload was greatly reduced when VTA was deployed in the course, creating more opportunities for innovating classroom teaching.
- Consistent and convenient practicing of course concepts through information retrieval and immediate and constructive feedback: Logs indicate that students use Mycroft to test and challenge themselves, making connections to previously learnt materials and create long term semantic or implicit memories that are often tested in exams.

References:

- S. S. Gill et al., "Transformative effects of ChatGPT on modern education: Emerging Era of AI Chatbots," *Internet Things Cyber-Phys. Syst.*, vol. 4, pp. 19–23, Jan. 2024, doi: 10.1016/j.iotcps.2023.06.002.

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Session 102: Presentations

102a: Engaging the Quiet: Pedagogical Strategies to Encourage Participation Among Students who Experience Social Anxiety

Kristin Archbell, School of Pharmacy, University of Waterloo

Social anxiety is characterized by a fear of novel social situations, social embarrassment, and perceived negative evaluation. Scholars often describe social anxiety via self-presentation theory, whereby the drive to create a positive impression on others is coupled with the low expectation of doing so. The reported prevalence of social anxiety among young adults has been on the rise over the past two decades and has been exacerbated by the pandemic. It has been well-documented that social anxiety is positively associated with exam failure, university attrition, poor academic performance, and lower classroom connectedness, and negatively associated with course engagement and satisfaction. Moreover, social anxiety is often correlated with deficits in communication, attentional control, and learning problems.

In the university context, experiences of social anxiety can be problematic for students, given the emphasis on peer interactions and participation, which are often tangibly connected to assessments. Moreover, strategies meant to enhance classroom engagement can be particularly stressful for students who experience social discomfort (e.g., cold calling, classroom discussions, group work, etc.). Therefore, it is critical to encourage engagement among students who experience social anxiety in ways that align with psychological safety (i.e., reducing perceived threat of participation and accompanying distress), in hopes of mitigating negative academic outcomes. This presentation will discuss teaching and course design strategies which can be implemented by instructors to support students who experience social anxiety. Strategies include creating a safe environment, encouraging comfortable student-student interactions, providing time and space, integrating anonymity, gentle exposure, providing choice, and implementing a needs assessment.

By the end of this session, participants will:

- Recognize how experiences of social anxiety can impact student outcomes.
- Identify areas of teaching and course design that may incite social discomfort.
- Select engagement strategies that can be easily implemented in a course to support students who experience social anxiety.

Takeaways:

- Social anxiety is a persistent concern in the university classroom, which can negatively impact student engagement and success.
- Teaching and course design strategies can be implemented to mitigate negative impacts of social anxiety, including: (1) creating a psychologically safe classroom environment; (2) encouraging low-stakes and comfortable student-student interactions; (3) providing time and space for students to prepare for participations/classroom interactions; (4) integrating anonymity in participation; (5) gentle exposure to verbal and behavioural participation; (6) providing assessment choice; and (7) implementing a needs assessment.

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102b: Engaging and Motivating At-Risk Students: Assessing the Impact of an Academic Skills Course *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Angela Rooke, Student Success Office, University of Waterloo

Min Huang, Student Success Office, University of Waterloo

Nada Alshehabi, Student Success Office, University of Waterloo

Mrittika Dreesha, Sociology and Legal Studies, University of Waterloo

Since 2011, the Student Success Office (SSO) has offered a for-credit academic skills course for students in the “Foundation Term”, a reduced load program for students who received a required-to-withdraw academic standing in their first year of studies. The goal for this course is to teach students learning strategies that will enable them to become successful independent learners. Since its inception, the course has been set up as a restricted course, allowing only Foundation Term students to enroll. In Winter 2024, we offered a more proactive, pilot version of this course to an expanded cohort of students: Students from the faculties of Health, Science and Arts who were at risk academically (students who had not received a failed standing, but a “conditional” one).

The SSO is using this pilot to rethink how we assess the course’s impact. Traditionally, the Foundation term and the UNIV 101 course have been assessed quantitatively, based on academic outcomes (student persistence and cumulative grade averages). A new project, funded by the LITE seed grant, will help us understand the broader impact of the course on students’ academic success by moving us beyond a sole focus on academic grade and progression outcomes towards an assessment that includes students’ perceptions of self, and their own reflections on their learning and capabilities.

This presentation will provide an overview of the research questions, methods, and purpose of our small study. Preliminary results from our winter term pilot will be shared. Attendees will learn the value of investigating students’ beliefs about themselves as learners, and the impact of students’ academic self-concept on their learner identity. The presentation will also focus on the impact of course content on student learning strategies and metacognitive awareness, demonstrating for attendees the importance of embedding learning skills content into their courses.

Takeaways:

- By embedding learning skills into course content and intentionally promoting students’ metacognitive awareness, course instructors can promote deeper student learning.
- Students who develop positive self-perceptions and adopt personalized learning strategies are more likely to succeed and persist in post-secondary studies.

References:

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102c: Supporting Student Engagement with Feedback through Mindfulness

Erin Isings, Western University

Christine E. Bell, Western University

Cecilia S. Dong, Western University

Samantha Jones, Western University

Hugh Samson, Western University

Lisa McCorquodale, Western University

Thomas Telfer, Western University

Tracey Ropp, Western University

Feedback plays an essential role in student learning; however, many students lack the skills to fully engage with feedback and grow in their learning. Feedback literacy is a student's ability to make meaning out of feedback (1). Feedback literate students engage in a cyclical process of reviewing feedback and improving work, seeking additional feedback which is then followed by additional review for further learning and improvement. Receiving feedback can be an emotional process that challenges a student's sense of self, which can lead to disengagement with feedback (2,3). Mindfulness is paying attention, on purpose, and without judgement (4), and may support managing the emotions arising from the feedback cycle (5–8). Our research team investigated student perceptions of feedback literacy and mindfulness across Dentistry, Information and Media Studies, Law, Occupational Therapy, and Physiology and Pharmacology. From surveys and focus groups, students expressed a wide variety of feedback strategies, such as seeking out friends, seeking isolation, having rituals, or developing superstitious practices. Students recognized these strategies may not be effective at managing their worries about their future academic or professional careers. Students reported varying degrees of feedback engagement and were receptive to the idea of mindfulness to help them manage their emotions. Students expressed a desire to have guided instruction on how to improve their feedback literacy as part of a learning management system.

Learning outcomes:

- Describe strategies of student engagement with feedback.
- Explore applicability of mindfulness to student engagement with feedback

Takeaways:

- Students need more guidance in developing feedback literacy skills.
- Supporting student wellbeing in learning through mindfulness may lead to increased engagement with feedback.

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Session 103: Presentations

103a: Waterloo's Climate Leaders Program: Sparking Student Engagement in Climate Learning and Action

Michele Martin, Office of Research, University of Waterloo

Tola Titcombe, Chemical Engineering, University of Waterloo

Minh Chau Nguyen, Statistics & Actuarial Science, University of Waterloo

We are in a climate crisis and young people are anxious about their futures (Galway and Field, 2023). Universities are responsible for responding (Alexander, 2023), ensuring that all graduates from all programs are prepared to survive and thrive in a climate changed world and to actively participate in building a climate resilient, sustainable society. University of Waterloo offers several specialised climate change programs and courses, and more are under development, but for students in programs where the curriculum has not yet begun to address climate change, extra-curricular programs can provide a valuable space for sparking and sustaining engagement in climate solutions. In September 2023, the Waterloo Climate Institute launched the Climate Leaders program for students, which is overseen by a Student Climate Council representing all six faculties. This program aims to build and support a community of students across campus who are passionate about climate change, where they can learn from each other, share motivation and strength, develop climate leaderships skills, and expand their social and professional networks of students, researchers and partners representing diverse backgrounds and sectors. With the support of Climate Institute staff, Climate Council members are planning and leading a range of activities to build student engagement around climate change, (including an interdisciplinary climate conference for students in March). In this session, Climate Institute staff and Climate Council students share reflections on the program, incentives and barriers to student participation, and strategies to enhance student engagement, in light of international best practices (Leal Filho et al, 2023). The presentation will also explore how this type of extracurricular student engagement can inform, support and enhance climate pedagogy in the curriculum.

Participants will:

- Gain an understanding of how the Climate Institute's Climate Leaders program for students is contributing to student engagement in climate learning and action on campus and in the community.
- Reflect on the potential for extra-curricular student activities to inform and enhance climate pedagogy in the formal curriculum.

Takeaways:

- Students are interested in climate learning and action.
- Extra-curricular activities can enhance and inform climate learning and action in the curriculum.

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103b: Relational Learning: Practices to Deepen Connection with Each Other, Community, Land and Place *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Ginny Wong, School of Environment, Resources and Sustainability, University of Waterloo

Steffanie Scott, Geography & Environmental Management, University of Waterloo

Relational learning emphasizes the inherent connections between human beings and all living beings and ecosystems (Sipos et al. 2008; Walsh et al. 2021). Viewing the living world through a purely analytical lens, as academics often do, creates conditions for separation and disconnection. In relational learning, education is not solely a cognitive exercise, but rather the more integrative and holistic work of our minds, hearts, and hands (Sipos et al. 2008). Such learning invites imagination, emotional connection, sensing into and embodying other ways of knowing, and a pedagogy of love (Clingan 2015)—opening up more deeply to ourselves, to each other, to nature, and to material objects (with which we may engage as makers). In this session we share two short presentations:

1. Ginny Wong will present “Prioritizing relationship building in the classroom: How connecting with self and community can influence environmental education”, drawing on focus groups with undergraduate students, faculty, and staff at the University of Waterloo’s Faculty of Environment and Centre for Teaching Excellence.

2. Steffanie Scott will share about her LITE grant research on reconnecting with land and place, which encourages educators to incorporate place-based education and ‘land as teacher’ pedagogies. Key themes from the interviews with educators are centering Indigenous Knowledge and perspectives; cultivating cultural responsiveness; promoting critical reflection about colonial legacies; fostering relationship-building with Indigenous communities and elders; and empowering student agency. Healing is needed among all peoples to recover from the traumas of separation from land and land-based lifeways.

Takeaways:

- We share examples and opportunities to deepen experiential learning, community connection, land connection, and circle learning.
- We highlight ways to encourage student reflection on their roles and responsibilities in addressing colonial legacies and degradation of the living world.

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103c: Examining Student Engagement and Success between a Remote and Fully Online Course in Earth and Environmental Sciences

Keith Delaney, Earth Sciences, University of Waterloo

Kristin Wilson, Psychology, University of Waterloo

Felicia Pantazi, Centre for Work-Integrated Learning, University of Waterloo

One of the most challenging obstacles to running a successful online course is the ability to continually engage students throughout the semester, while not directly interacting with them in-person (Paulsen and McCormick, 2020; Prince et al., 2020). Farrell and Brunton (2020) define five ideals which aid online student engagement: sense of community, support networks, balanced schedules, confidence in the content, and effective learning approaches. Research has found that when course content is aligned with principles of multimedia design (Mayer, 2002) and the User Experience Design for Learning (UXDL), students report improved learning experiences and more engagement (Troop et al., 2020). These studies, however, did not explore learner behaviours of engagement i.e., observational learning behaviours (reading discussion posts, visiting content pages) or the application of learning behaviours (replying to discussions, and taking quizzes) in online courses.

The present study aims to explore student engagement (observational and application learning behaviours) across a remote, as well as a fully online, first year Earth and Environmental course. One version was delivered remotely via narrated PowerPoint presentations, the other delivered via multimedia HTML pages that aligned with the UXDL framework (the Useful cell) and Mayer's principles of multimedia learning. The instructor, content, graded assessments, and weekly student activities remained similar between courses, while the presentation, style, and display of the content, were modified to a more pedagogically sound approach and up-to-date visual design. The similarity in assessments across the two courses, enabled us to also compare i) total LEARN landing page views, numbers, and duration of individual content page visits, ii) total number of discussion posts, replies, and read, iii) total number of quiz attempts, completions, and average grades, and, iv) total number of assignment submissions and the average grades, to identify if higher student engagement also aligns with higher student performance.

Takeaways:

- Understand the connection between content delivery strategies and student engagement in online learning environments.
- Explain why student engagement may vary between remote and online courses.
- Identify strategies to enhance student engagement in online courses.

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Session 104: Presentations

104a: Exploring Perceptions on Alternative Assessment and Grading in Graduate Anatomy Education

Emily Dietrich, Western University

Sean McWatt, Western University

Assessment and grading are foundational pillars of education systems worldwide which were initially introduced as a communication tool, but quickly became a source of extrinsic motivation to succeed academically, then evolved into a source of anxiety for many students. As such, many educators have begun to alter their approaches to assessment to bring focus back to the learning process. Alternative assessments take a variety of forms, and studies investigating their impact have reported increases in intrinsic motivation and decreases in academic-related stress. This study examined perspectives of graduate-level anatomy students and instructors on feedback-based versus traditional quiz-based formative assessments at Western University.

Analysis of student semi-structured interviews generated the following themes regarding assessment and grading: (1) communicating clear goals and expectations, (2) instructor approachability and individualized assessment, and (3) alignment between perceived effort and outcomes. Analysis of faculty interviews demonstrated intentions to: (1) promote non-technical, discipline independent skills, (2) provide authentic learning experiences, and (3) emphasize individualized assessment. The results indicated that misalignment between instructors' goals and students' experiences with assessment and grading in the course exacerbated students' stress and detracted from their intrinsic motivation to learn. Feedback-based assessments were generally preferred, as they were perceived as individualized and more conducive to deep learning.

Based on these results, this session will explore elements to consider when implementing feedback-based assessment in formative settings to enhance student engagement while minimizing their academic-related stress. In the spirit of the conference theme, attendees will engage in an active brainstorm of ways to implement an alternative assessment approach in their own teaching contexts

By the end of this session, participants will be able to:

- Describe important considerations for implementing alternative assessment practices, like feedback-based assessment, for formative evaluation.
- Use constructive alignment principles to design an individualized alternative assessment for a course they teach.

Takeaways:

- Clear communication of goals and expectations by the instructor is crucial for the successful implementation of alternative assessment approaches.
- Alignment between the learning goals (both knowledge- and skill-based) and the culture of assessment in a course increases the likelihood of a transformative and supportive learning experience.

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104b: Generative AI and Student Engagement: A Study of Two Urban Planning Classes *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Carrie Mitchell, School of Planning, University of Waterloo

Katherine Perrott, School of Planning, University of Waterloo

Planning education plays a crucial role in preparing future urban planners to tackle complex challenges in an ever-evolving world. With the rapid advancement of generative artificial intelligence (AI) technologies, such as large language models (e.g. ChatGPT) and image-based generative models (e.g. DALL-E), there is an urgent need to explore their application in planning education. Generative AI is a type of artificial intelligence that can produce new and original content, such as images, text, or music, based on patterns and data it has learned during its training. Existing research on AI in planning primarily focuses on its application in planning practice, such as data analytics, predictive modelling, and decision support systems (Pérez-Martínez et al., 2023; Wang et al., 2023). There is, however, limited research specifically dedicated to understanding the use of generative AI in education generally, and planning education specifically, and their implications for teaching and learning. This research fills this critical gap, exploring how over 150 students engage with generative AI through two major assignments and a student experience survey.

In this presentation, we detail the process integrating ChatGPT and DALL-E into the curriculum of two undergraduate classes and discuss the implications for teaching and learning, with a focus on student engagement. Overall, we found that integrating generative AI into curriculum can be an effective tool to engage students in reflection about the appropriate and ethical uses of AI in our profession.

Takeaways:

- AI can be integrated into assignments in ways that both train students to effectively use AI tools, while also prompting reflection about ethical use.
- AI can enhance student engagement because it offers interactive and quick ways for students to iterate ideas and play with concepts in potentially constructive ways.

References:

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104c: YES! “Critical Thinking” Can be Engaging and Interactive: The Case of an Online Philosophy Course

Greg Andres, Philosophy, University of Waterloo

Yasser Abdelaal, Centre for Extended Learning, University of Waterloo

This session showcases the redevelopment of an online philosophy course on critical thinking and the engagement strategies utilized to convert it from an audio-based course to an interactive hypermedia-based course. This project sets a successful example of using technology to stimulate engagement and foster cognitive and emotional engagement proposing diverse engagement strategies like using humor, comics, cartoon characters, providing engaging visual design and authentic examples that are relevant to UWaterloo and Canada and which resonate with the own needs of First Year students who take the designed course. The session also shares some best practices to humanize online courses through the instructor presence to help motivate students and engage them with the content and maintain the connection between the instructor and learners in an asynchronous learning environment. Finally, the session showcases how the course design fostered engagement as a feedback loop where the instructor constantly showed their enthusiasm for learning the subject and encouraged student engagement that continued to motivate the instructor to invest more effort in designing stimulating learning activities.

Takeaways:

- Apply best practices of using technology to stimulate engagement in online philosophy courses.
- Identify practical examples to foster engagement and humanize the online learning environment.

Session 105: Panel - Feminist and Community-Centered Pedagogies: Sparking and Sustaining Collaborative Engagement and Relationship Building *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Laura Mae Lindo, Philosophy, University of Waterloo

Kate Mercer, Library, University of Waterloo

Kim Hong Nguyen, Communication Arts, University of Waterloo

Katy Fulfer, Philosophy, University of Waterloo

Craig Fortier, Renison University College, University of Waterloo

Feminist, anti-racist/decolonial pedagogies aim to foster critical dialogue and communities of care. Yet, academic programs often emphasize individual work and achievement. When coupled with the importance of lifting minoritized voices, collaboration can be an important feminist practice of mutual aid. Collaboration with the spirit of relationship building seeks to learn and grow together.

This panel explores the following question: Why is relationship building vital to feminist and community-centred pedagogies? In answering this question, each panelist will share strategies that we have developed from our research and practice for implementing feminist, community-oriented pedagogies. We aim to foster discussion about how we can enhance our engagement with fellow instructors and students.

Afrocentric principles have long been called for by Black communities to encourage the academic success of Black students in educational settings. Participant 1 will explore the power of Afrocentric pedagogies, much of which grounds teaching (and learning) in collaborative relationship-building in classroom settings.

One of the notorious challenges in academic contexts is navigating information sources that are 'not academic'. In many cases, the approach to promoting information sources that are peer-reviewed and behind paywalls isolates students from the many different communities that make up the world we live in. Participant 2 will explore how using a community-focused approach to information, and how teaching students to value and use different types and authorities of information can act as a launch to collaboration both within, and outside the classroom.

Participants 3 and 4 will draw on their LITE-funded research to explore the importance of multiracial teaching for building relationships and social justice work. There is a benefit to students in being able to watch how practitioners navigate difficult conversations across lines of racial difference, and for instructors, especially racialized instructors, to extend care and concern for their peers in times of crisis (Banda and Reyes 2022).

Takeaways:

How to implement feminist, community-oriented pedagogies, and more specifically:

- How Afrocentric pedagogies support collaborative classrooms.
- How a community-focused approach to information supports collaborative classrooms.
- How interracial co-teaching benefits student learning and instructor well-being.

Session 106: Panel - Prioritizing Student Perspectives: Building Engagement Through Peer-led Academic Support

Marcus Chan, Mathematics, University of Waterloo

Tamara Harbar, Environment, University of Waterloo

Dragana Kostic, Student Success Office, University of Waterloo

Katie Plant, Arts, University of Waterloo

Deanna Rooke, Renison University College, University of Waterloo

Stephanie Steh, Health, University of Waterloo

Maša Torbica, Writing and Communication Centre, University of Waterloo

In this panel, full-time and student staff from UWaterloo's Writing and Communication Centre (WCC) and the Student Success Office (SSO) explore the connections between academic peer support and student engagement.

WCC and SSO each offer a range of peer-led programming focused on supporting students both inside and outside of the classroom, contributing to UWaterloo's 2020-2025 Strategic Plan goal of strengthening sustainable and diverse communities (University of Waterloo, 2019). Their respective peer tutoring programs have been designed to provide scaffolded support to students, encourage critical thinking, problem solving and goal setting, as well as to increase student engagement and sense of belonging. As we will discuss, successful implementation of well-structured peer-led support is positively linked to academic performance and student engagement (Andreanoff, 2016). Specifically, specialized support by trained peer tutors can build authentic rapport and trust, reduce power differentials, and empower students with self-advocacy skills (Colvin & Ashman, 2020; Pye et al., 2020).

During this panel, WCC and SSO staff will highlight the strengths of peer-to-peer programming. Next, peer tutors will share how they combine their perspectives as students and their training as peer leaders to collaborate with peers authentically and effectively in appointments. They will also discuss differences in student engagement between voluntary and mandatory sessions, the impacts of their roles on their own student experience, and opportunities for connecting students with SSO and WCC resources. Finally, we will invite audience participation during a 15-minute Q&A discussion.

Overall, panel attendees will 1) understand the pedagogical benefits of peer-led academic support and 2) recognize how administrators, instructors, and support staff working with students can leverage WCC and SSO peer support resources to increase student engagement inside and outside the classroom.

Takeaways:

- Well-structured peer-led academic support leads to increased engagement inside and outside the classroom for peer leaders and student participants.
- Specialized support by trained peer tutors can build authentic rapport and trust, reduce power differentials, and empower students with self-advocacy skills.
- Promote student engagement by effectively connecting students with specialized support and resources offered by WCC and SSO.

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Session 107: Alternative Session - An Auto-Photography Study to Explore Safe Spaces from Campus Housing Black and Racialized Student Resident experiences: Student Engagement Outside of the Classroom Emerges

Hend Shalan, Campus Housing, University of Waterloo

Glen Wepler, Campus Housing, University of Waterloo

Franco Solimano, Campus Housing, University of Waterloo

Understanding the needs of students is crucial in any educational setting, especially for university students who live and learn on campus (Peck et al., 2022). On-campus residences have a great impact on students' sense of belonging and well-being, as they are the places where most students live alone for the first time without their parents or a family member (Graham et al., 2018). For some, it may involve adapting to a new environment or culture (Buckner et al., 2022; Gupta & Gomez, 2023). The layout of residence halls, programming, and communication can either foster a sense of belonging or hinder it. Despite on-campus professionals taking steps to ensure positive experiences for all students, Black and Racialized students often face challenges or barriers that limit their full engagement and sense of belonging (Harwood et al., 2012; Haynes, 2019; Johnson et al., 2007).

The University of Waterloo's Campus Housing (CH) conducted an auto-photography study to understand the experiences of Black and Racialized first-year students living in CH residences, focusing on their perspectives regarding safe spaces. The research aimed to address the following two questions: 1) What are the experiences of Black and Racialized students living in Campus Housing as reflected via their photos and narratives? 2) How can Campus Housing create safe spaces in on-campus residences for Black and Racialized students?

During our presentation, we will begin by providing a brief overview of campus housing, delving into research details, and offering insights into the living-learning communities (LLCs), as an engaging community. Attendees will be involved in engaging activities with research photos and content.

By the end of this session, attendees will be able to:

- Identify the main themes reflecting the experiences of Black and Racialized students living in Campus Housing.
- Discuss the importance of safe spaces for student well-being, engagement, and academic success.
- Identify ways to collaborate in supporting student engagement outside the classroom.

Takeaways:

- Engaging with students beyond the classroom (i.e., their living environment) positively influences their academic success and well-being.
- Residing in on-campus housing positively contributes to students' sense of belonging, academic success, and overall well-being.
- Faculty members play a crucial role in community engagement, as evidenced by their involvement with Campus Housing.

References:

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Session 108: Alternative Session - Engaging our Community with Accessible Teaching Practices: A Candid Conversation Between Waterloo Instructors and Instructional Staff Involved in the Accessible Education Project

Victoria Feth, Centre for Teaching Excellence, University of Waterloo

Kyle Scholz, Teaching Innovation Incubator, University of Waterloo

Rob Hill, Physics, University of Waterloo

Diana Skrzydlo, Statistics & Actuarial Science, University of Waterloo

Carol Hulls, Mechanical and Mechatronics Engineering, University of Waterloo

Matt Justice, Centre for Extended Learning, University of Waterloo

Jennifer O'Brien, AccessAbility Services, University of Waterloo

Jason Grove, Chemical Engineering, University of Waterloo

The Accessible Education Project (AEP) began in 2023 to address 28 of the 185 recommendations put forward by the Ontario government's Postsecondary Education Standards Development Committee that directly impact or intersect with teaching and learning. This project is intended to, amongst other goals, support the creation of a teaching and learning environment in which innovative, accessible education practices are valued and supported, as well as position accessible education as a road to better teaching and learning for everyone, not merely a regulatory approval matter. Over the next few years, three committees, co-led by faculty members and senior leaders in academic support units, will be leading the institutional response to creating a fully accessible educational environment.

In order to bring our internal conversations as part of the AEP to the forefront, we will stage a candid conversation between members of the AEP's committees, including instructors and staff, committed to advancing accessibility at the University. We, the moderators, will host this conversation by implementing an engagement strategy known as the fishbowl technique (Grier-Reed & Williams-Wengerd, 2018). Unlike a panel, which is limited to 4-5 panelists, the fishbowl can center more voices in authentic dialogue, which is important to a discussion of accessibility as everyone's lived experience is unique and often intersectional (Hill Collins, 2019). It further allows for disruption of traditional power dynamics that may otherwise limit underprivileged or underrepresented voices (Leslie & Johnson-Leslie, 2023). Session attendees will become participants as we open the floor to hear their voices and be invited to share their own equitable engagement practices, and ask questions about accessible education and the AEP specifically.

Learning Outcomes – Attendees will:

- Learn about the Accessible Education Project and the impact of accessible teaching practices from instructors and instructional staff who are involved with this initiative.
- Experience and reflect on the utility of the fishbowl technique to engage learners in authentic dialogue and hear from a plurality of voices.

Takeaways:

The Accessible Education Project aims to move beyond compliance with government mandate to positively impact the culture of accessibility at Waterloo, particularly the experience of learners who are disabled.

- Accessible teaching practices are of particular importance and necessity when engaging learners who are disabled, but they also engage typical learners as well.
- Waterloo instructors across disciplines are already using accessible teaching practices and are ready to connect with others who want to share and learn more.

References:

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Concurrent Sessions (200): Thursday, May 2 (11:40am - 12:40pm ET)

Session 201: Presentations

201a: Engaging Assessments with Real Data Analysis in Undergraduate Statistics Courses

Luke Hagar, Statistics & Actuarial Science, University of Waterloo

The Guidelines for Assessment and Instruction in Statistics Education (GAISE) report details six recommendations for undergraduate statistics courses to promote statistical literacy. This resource urges statistics instructors to integrate real data with context and use technology to analyze data. Despite these recommendations, meaningful analysis of realistic data is often precluded from introductory statistics courses.

In this presentation, we discuss practical strategies to incorporate real data analysis into undergraduate statistics assessments. These strategies are illustrated using an assessment from my Winter 2024 STAT 341 course in computational statistics and data analysis. This assessment had students engage with a scaffolded process to implement new techniques for data analysis in the programming language R. Recent contributions to statistical pedagogy demonstrate students' desire to engage with real data analysis, and student-centered approaches to assessment should ideally incorporate this feedback.

Takeaways:

- Describe how real data analysis can be used to engage students by means of assessment.
- Explain the importance of using real data to illustrate when methods for data analysis succeed and fail.
- Identify advantages of using computer simulation activities to develop statistical thinking skills.

References:

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201b: Modelling with Spreadsheets to Enhance Engagement

Otto Yung, University of Toronto

The reliance on spreadsheet modelling brings more credibility to the classroom because instructors and students have an opportunity to inquire about the assumptions that influence the models. Students become more curious and are more willing to challenge the status quo. In this presentation, we will discuss about the classroom material (e.g., statistics, data sampling techniques, etc.,) used so students can become more productive with these models. Experience has shown that students' interest increases because they become empowered to take their modelling skills to another level from static to dynamic modelling. As students obtain new assumptions they can embed them into their models to better understand the uncertainty they are dealing with. Students become more inquisitive and ask more thoughtful questions of the validity of their own models as well as their peers. The benefits of spreadsheet modelling was proven by Marriott, N., (2011): It presents an opportunity for students to develop algorithmic thinking, to use spreadsheet modelling skills in a realistic setting, to enhance cognition in understanding the 'whole' of a business problem, and to reduce instrumentality through the intrinsic enjoyment of problem-based learning. Modelling is an ongoing and collaborative learning process as students begin by building them on their own before building them as a team. Opportunities are then open to share with the broader classroom to further challenge each other's assumptions about the problem at hand. This builds an engaging culture that values the importance of diverse thinking. Illustrative modelling examples include:

- Estimating worst-case loss levels for insurance purposes by creating a loss distribution due to operational risk (e.g., damage to physical assets, business disruption and system failures, etc.,) by sampling for loss frequency and loss severity. This example comes from an Enterprise Risk Management Course.
- Estimating worst-case loss levels for regulatory purposes by creating a loss distribution due to credit risk (e.g., loans, account receivables, etc.,) by sampling for number of defaults and loss given defaults. This example comes from a Financial Risk Management Course.
- Estimating a confidence interval for stock prices by creating a price distribution by varying assumptions such as sales growth, operating margins, and cost of financing. This example comes from a Financial Modelling course to train students to be financial analysts based on practitioners' best practices. This work forms one of the sections of the students' investment research report as well as their presentation to the class as a team of analysts.

Takeaways:

Participants to this session will be provided with additional ideas and techniques to leverage spreadsheet features and software add-ons (e.g., random sampling, Monte Carlo simulation, etc.,) to incorporate more realism into modelling. Interested participants will receive illustrative examples that they can use in their own classroom. Experience has shown that modelling is effective for in-person, online and blended delivery modes.

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201c: Improving Relational Algebra Query Understanding with a Relational Algebra Compiler *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Paul Ward, Electrical and Computer Engineering, University of Waterloo

Relational-database systems are a standard software engineering tool, essential to most modern software applications. Learning about these systems is core material in any software engineering education. Relational Algebra (RA) is the foundational query language for such systems. Students exhibit significant difficulties in understanding RA, both in terms of concepts themselves, and the connection between RA and the structured query language (SQL) used in actual database systems. Students need to gain a solid understanding of RA in order to write correct SQL. However, they often do it the other way around, and typically write incorrect SQL and RA as a result.

Unfortunately, there is no good RA tool that allows students learning RA to practice and check their own work. This is because the RA syntax is highly mathematical, requiring various Greek letters and subscripts, none of which are easily expressible using a standard QWERTY keyboard. That is, students must write pen-and-paper solutions and wait for graded feedback. While it is possible to create RA problem sets, together with sample solutions, there is a significant limitation to this approach: students must self-assess whether or not their solution is correct. Unfortunately, for any non-trivial query problem there are multiple valid RA solutions. Generating all possible legitimate solutions is not feasible.

To address this deficiency, we have developed a QWERTY-compatible RA syntax and compiler. Preliminary use of this compiler in a database-systems course with about 200 students suggests that it is having positive effects in terms of student learning.

Takeaways:

- Students learning database query languages should start with a foundational understanding of relational algebra before SQL.
- QWERTY-compatible relational algebra allows for student practice, enhancing learning.

References:

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Session 202: Presentations

202a: Fostering Student Engagement Through Competency Based Assessment Framework *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Rania Al-Hammoud, Civil and Environmental Engineering, University of Waterloo

Richard Li, Centre for Teaching Excellence, University of Waterloo

Competency-Based Assessment (CBA) in higher education aims to elevate student learning and engagement while refining teaching practices. Focused on developing crucial competencies, skills, and knowledge applicable to future careers, this approach thrives when students take ownership of learning, persisting through challenges tied to clear progress. Effective CBA necessitates well-defined competencies measured through precise frameworks and rubrics. Assessment design should offer multiple opportunities for mastery demonstration, emphasizing deeper understanding and application. Prioritizing performance-based assessments with clear outcomes, integrated feedback, and authentic models enhances the process. Besides the perceived burden among instructors in adapting courses to CBA, the benefits for students are hindered by occasional confusion surrounding grading schemes. Clear communication and a streamlined transition process can mitigate these challenges, fostering a more efficient and beneficial educational experience.

This presentation serves two primary objectives. The first is to expose a redesign methodology applied to a first-year mechanics course, originally structured as a flipped classroom model and subsequently transformed into a CBA model. The presentation delves into the advantageous aspects of initiating from a flipped model, requiring fewer adjustments or modifications to align seamlessly with the CBA framework.

The second objective is to provide a visual aid in the form of a flowchart for students. This flowchart aims to enhance understanding by clearly illustrating the grade distribution within the context of a CBA model.

In conclusion CBA is an effective method to enhance students' learning, however little has been discussed about the redesign strategies and resources. With the help of the work presented in this presentation, instructors will have a tool that they can use to help them build a CBA model within their course.

Takeaways:

- This presentation serves two primary objectives. The first is to expose a redesign methodology applied to a first-year mechanics course, originally structured as a flipped classroom model and subsequently transformed into a CBA model. The presentation delves into the advantageous aspects of initiating from a flipped model, requiring fewer adjustments or modifications to align seamlessly with the CBA framework.
- The second objective is to provide a visual aid in the form of a flowchart for students. This flowchart aims to enhance understanding by clearly illustrating the grade distribution within the context of a CBA model.

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202b: Authentic Learning: Using Case Competitions to Engage Students and Industry Partners

Vicki Zhang, University of Toronto

Various pedagogical researchers have written about the merits of project-based learning and authentic assessments (Azizah & Aloysius, 2023, Xu et al., 2021, Zotou et al., 2020). At our university's actuarial science programs, we are constantly searching for student-centric and authentic projects and assessments. In the past four years, we have experimented with various case competitions in insurance and finance that span many real-world challenges. We have found case competition a highly effective way to engage both our students and industry partners, and can be implemented in diverse delivery modes. In a friendly but competitive environment, students work in small teams to help solve real-life insurance and finance problems from our industry partners by applying their theoretical knowledge to practical challenges, and many have acquired internships through the process. We have also used case competitions to engage students in societal crises such as researching and quantifying the impact of climate change on certain lines of insurance.

In this session, we will present both the in-course and co-curricula case competitions we have designed and implemented in recent years, which we started during the pandemic years using online platform and now have transitioned to in-person or hybrid format. The focal points of our discussions include:

- (1) the goals and logistics of case competitions;
- (2) how case competitions solve real-world problems while showcasing and improving students' technical and communication skills;
- (3) how we involved the industry in designing the cases and serving as judges;
- (4) ways to facilitate student engagement online during the pandemic and in-person postpandemic;
- (5) the grading rubrics for case competitions and the importance of qualitative feedback both from academic advisors and industry judges.

Much of the process is applicable to other disciplines. We will also encourage session participants to share their experiences related to case competitions in their own fields.

Takeaways:

- We found case competition an authentic, student-centric, and highly effective way to engage both students and industry partners. It is recommended to involve external partners in the designing process of case competitions to ensure the problems represent real-world complexities.
- Case competitions can be used to engage students in societal crises, and communicating grading rubrics ahead of time and providing qualitative feedback is crucial.
- Case competitions can be implemented across diverse delivery modes.

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202c: Learning from My ABCs: Assessments Based on Contributions from Students

Chelsea Uggenti, Statistics & Actuarial Science, University of Waterloo

How can we better engage our students with their assessments? The use of student-generated questions (SGQs) or student-generated tests (SGTs) have been examined in recent years as demonstrated by Lam (2014). This approach is recognized to promote students' active participation in the assessment process and to potentially provide students with timely feedback before misconceptions can be formed. However, this practice can have negative consequences on students' learning. Students may be inclined to merely memorize the question bank of SGQs when studying for the corresponding assessment, as mentioned in Papinczak et al. (2012), thereby favouring surface-level learning instead of deep-level learning. Yet several variations of SGQs/SGTs exist that should also be considered. Building assessments based on contributions from students – not only self-generated questions – is a beneficial way to foster student engagement in their assessments. Two examples of assessments implementing this idea in statistics courses will be shared. The first example from a third-year course focuses on survey questions about the course that are generated by students and subsequently compiled into a questionnaire which students critique later in the term. The second example from a second-year course involves an assignment on data analysis where the students themselves provided the data to be analyzed. Many topics will be discussed including setup, structure, consent, and informal student feedback.

Takeaways:

- The basic idea of self-generated questions or tests can be adapted to different versions of “assessments based on student contributions” that promote student engagement.
- The many advantages and disadvantages for both students and instructors when creating assessments that rely on student contributions. For instance, one potential disadvantage for the instructor is that the assessment cannot be created too far in advance (e.g., at the start of the term) since it relies on the current cohort of students taking the class.

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Session 203: Presentations

203a: Engaging Students, Supporting Academic Integrity, and Pursuing Learning Objectives Through Course-Based GenAI Literacy

Karen Lohead, Centre for Extended Learning, University of Waterloo

In this session I'll present the generative artificial intelligence (GenAI) assignment I designed for my 3rd year Indigenous Peoples and Public policy course (Fall 2023). My presentation will draw attention to the engagement strategies this assignment drew upon, namely ungrading, scaffolding, relevance, mystery, and emotional connection, and their impacts on student engagement as revealed through relevant course data, student commentary, and assignment feedback.

My session will also draw attention to the important intersection between student engagement, GenAI literacy, and academic integrity in the GenAI era, and explain how GenAI literacy can be constructively aligned with non-GenAI related course learning outcomes.

Attendees will leave this session with strategies to spark and sustain student engagement as well as ideas for supporting GenAI literacy and encouraging students' productive engagement with GenAI in the classroom and beyond.

Takeaways:

GenAI can support Academic Integrity

- An instructor with novice-level GenAI literacy can engage their students with GenAI
- Open GenAI use policies don't necessarily mean more GenAI use

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203b: Designing with Virtual Reality: Integrating VR in the Classroom for Design Based Learning

Ville Mäkelä, Stratford Programmes, University of Waterloo

Cayley MacArthur, Stratford Programmes, University of Waterloo

Daniel Harley, Stratford Programmes, University of Waterloo

This presentation will provide early insights into the practical and experiential characteristics of using virtual reality (VR) in a 4th-year design course at the Stratford School. Current research and the resources provided by the Extended Reality Community of Practice at the University of Waterloo outline many innovative pedagogical opportunities for VR in the classroom, ranging from experiential learning to increased engagement. However, VR is largely untested at the University of Waterloo, and there are many open questions about how VR might be applied to meet the specific learning outcomes of individual courses, as well as how we might address a range of logistical and technological challenges with varying impacts for faculty, staff, and students. With access to 30 consumer-grade VR headsets (Meta Quest 2 and Meta Quest Pro) that we have integrated for the first time into a course in the Global Business and Digital Arts undergraduate program (GBDA 413: W2024), this presentation will outline initial findings from our REB-approved mixed-methods study in which we are collecting data on student deliverables and experiences. Throughout the course, although students are novice VR users, they are tasked with leveraging design principles learned throughout the GBDA program, testing the possibilities of VR as a design platform. Ultimately, we expect our findings to contribute preliminary considerations relating to the collaborative, social, creative, and logistical facets of VR in the classroom that can be more broadly applied to other University of Waterloo courses.

Takeaways:

- The social, embodied, creative and technological characteristics of VR present opportunities for novel pedagogical approaches, but also unique practical and logistical challenges for university classrooms.
- Developing considerations for VR in the classroom requires collaboration between faculty and staff, as well as close attention to the specific challenges these technologies may pose for some students, requiring more research to assess the strategies and conditions that help improve engagement and access.

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203c: ‘What’s the Point of English?’ Leveraging Language to Create Inclusive and Engaging Learning Opportunities for International Students

Keely Cook, Renison University College, University of Waterloo

Christine Fabian, Renison University College, University of Waterloo

Jane Karanassiou, Renison University College, University of Waterloo

Nela Maluckov, Renison University College, University of Waterloo

Expectations of student engagement in educationally purposeful activities at universities where English is the primary language of instruction presuppose the use of English for full participation (Lee & Castiello-Gutiérrez, 2019). However, the reality is that with the ubiquitous use of advanced generative AI applications, many international students whose first language is not English are not engaging with their learning environments in ways that are conventionally aligned with current constructs of engagement (as measured in the National Survey of Student Engagement). While there are potential uses of AI that may enhance engagement opportunities for this demographic, when it comes to engaging within the accepted academic discourse of the university, there are many uses of AI that intentionally or unintentionally circumvent engagement. These disparate learning experiences underscore existing inequities (Buckner, Chan & Kim, 2022) and support criticisms that the various ways in which student engagement is conceptualised and identified places too much emphasis on the generic learner to the exclusion of more culturally and linguistically diverse student populations (Zepke, 2014; Pendakur, Quaye & Harper, 2019), which, in turn, raises the question: To what extent should student engagement be expected and encouraged through the spontaneous and autonomous use of English?

In this presentation, we aim to promote subsequent dialogue surrounding the role of English and Gen AI on student engagement by first sharing the results of research designed to learn more about international student perceptions and use of AI tools and the impacts on engagement both within the university’s pathway programs (BASE and 2+2 EFAS) and for the purposes of learning within the disciplines. Preliminary findings will also be presented on former pathway student perceptions of the role of English in meeting degree program expectations. Stemming from these student insights, we examine strategies to motivate purposeful, inclusive engagement which are appropriate for both domestic and international students.

Takeaways:

- Language learners currently studying at UW perceive a connection between their autonomous fluency in English, without the use of AI tools, and their capacity to engage and be successful in their programs; competence in English remains a primary objective for studying in Canada.
- International students appreciate explicit directives as to when and how AI tools can be used in their courses, including opportunities for equitable engagement with ‘AI free’ tasks.

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Session 204: Presentations

204a: More Than Social Loafing: An Investigation of Factors Affecting Student Engagement in First-Year Student Teams

Victoria Kerr, University of Toronto

Patricia Sheridan, University of Toronto

Emily Moore, University of Toronto

Low engagement of students within project teams is a persistent issue (Borrego, 2013), particularly in large classes where it is difficult for instructors to closely monitor all teams. While interventions to reduce ‘social loafing’ (such as the use of peer feedback (Sheridan, 2015) and time cards (Demoret, 2019)) have been effective at improving the behavioral dimension of engagement, they do little to address the cognitive, emotional, and social dimensions. Low engagement across these remaining dimensions continues in some students, resulting in lower-quality learning experiences for all team members (Hasanov, 2021).

This work aims to better understand all dimensions of student engagement and investigate the internal and external factors affecting student engagement in first-year student project teams. The research question to be addressed is: ‘What factors do first-year students perceive as influencing their engagement within their student team?’.

This work uses semi-structured interviews with ten students in engineering design project teams at the University of Toronto. Thematic coding (Vaughn & Turner, 2016) was employed to determine themes and commonalities between student experiences.

Findings show that major influences on student engagement can be categorized as internal and environmental factors. Factors that positively influence student engagement include meaningful project topics, flexible roles and responsibilities, and psychological safety. Factors that detract from student engagement include strict and hierarchical roles within teams, low confidence, and fears of damaging peer relationships. We find clear links between these factors and specific dimensions of engagement.

Instructors can facilitate engagement by fostering student intrinsic motivation, supporting teams in developing healthy organizational processes, and fostering positive peer relationships. We recommend that instructors provide opportunities for students to work on projects closely related to their field of study, limit the use of hierarchical roles and encourage role fluidity, and implement short “check-ins” at the beginning of meetings to build relationships.

Takeaways:

- We have developed an understanding of internal and external factors affecting student engagement within student teams, suggesting that engagement is a complex phenomenon.- Instructors can facilitate engagement by fostering student intrinsic motivation, supporting teams in developing healthy organizational processes, and fostering positive peer relationships.

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204b: Engagement Methodology for an Introductory Course on Problem Solving

Sage Hall, Management Science and Engineering, University of Waterloo

Kenneth N. McKay, Management Science and Engineering, University of Waterloo

The first-year concept course in UW's Faculty of Engineering Management Engineering program, 2015-2020 focused on the development of problem-solving and critical thinking skills. As espoused by Dewey, experiential learning cycles and reflections were used in conjunction with multiple-student activities such as case studies, think-pair-share, and team projects to create the overall structure that encouraged student engagement in their active learning processes. The course was designed in 2014-2015 with the assistance of the UW's Centre for Teaching Excellence and the Faculty of Engineering's case writing team. Each activity was designed to be a bit puzzling, challenging, but doable. The activities aligned with Dewey's principles for pre-existing experiences by the students to set the stage for critical thinking, and gave the students something to do based on something they knew, which is important for creating an engaging situation. Every lecture module had multiple active learning moments such as think-pair-share, or mini-breakouts to work on an issue. The cases were presented via three case days, similar to business school case competitions, facilitated because of the course structure (Tuesdays were a full studio day). The activities during the term were designed for vertical and horizontal integration with opportunity for deliberate practice, feedback, reflection, and increasing difficulty and uncertainty. For sustainment, there is a need for many 'little' wins throughout, with everything being feasible, students being active in their learning and curious, intrigued by the unknown and mysteries, trying to figure out the 'why'. Not only were students engaged in the course, but the course also taught them how to engage in future courses, co-ops, and their overall academic experience, with reports fewer students seeking counselling services, and a 66% decrease in first year failure rates. In this session, we will discuss the course pedagogical methods and the engagement that they encouraged and facilitated.

Takeaways:

- Understanding how the methods were integrated and supported Dewey's concepts for how to teach critical thinking, and how active learning was achieved which was critical for student engagement.

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204c: Reflections on an Open Forum to Identify Student Engagement Strategies that “Stick” in the Post-Pandemic Era

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

Karla Boluk, Recreation & Leisure Studies, University of Waterloo

Elena Neiterman, School of Public Health Sciences, University of Waterloo

Michelle Ogrodnik, Kinesiology and Health Sciences, University of Waterloo

In Fall 2023, the Faculty of Health hosted a Lunch and Learn on the topic of student engagement. During this event, participants discussed different forms of student engagement, barriers facing faculty, and students’ experiences first-hand. Participants were invited to answer the following icebreaker questions about engagement through a sticky note activity: What have been your recent experiences with student engagement? What does/can engagement look like from a teaching and learning perspective? What concerns do you have about student engagement? The responses from participants prompted discussion and exposed commonalities amongst the groups. These shared experiences and observations demonstrated the importance of bringing voices together in what can be a traditionally siloed teaching and learning environment. Prior to the Lunch and Learn, student representatives from the Association of Health Students Undergraduate Members (AHSUM) were invited to attend and share their experiences with engagement, many of whom shed light on the impact of the pandemic on pivotal aspects of their undergraduate education.

In this presentation, three faculty members and a CTE Faculty Liaison will share highlights from the sticky note activity, reflect on their experiences with engagement, and describe successes and challenges with sparking and sustaining student engagement within their own contexts. Participants will have an opportunity to engage with one another during a discussion period. By the end of the presentation, attendees will be able to identify student-centered strategies to encourage engagement, reflect on how these strategies may integrate with current teaching beliefs and practices, and consider which strategies might be applied in future courses.

Takeaways:

- Creating spaces to share through structured events such as a faculty-wide Lunch and Learn can help foster a supportive and collaborative environment that bridges the divide between students and instructors.
- Engagement strategies are multifaceted; there is no “one size fits all” and it is important to adopt an open mind and trial-and-error mentality when preparing to teach.
- Instructor presence and authenticity is a necessary component of sparking and sustaining engagement in the teaching and learning environment.

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Session 205: Workshop - Classroom Exploration of GenAI Use and Limitations in Research: GenAI as Brainstorm Buddy and Research Process Pal

Mike Chee, Library, University of Waterloo

Jenna Hampshire, Student Success Office, University of Waterloo

Douglas Peers, History, University of Waterloo

GenAI has drawn much attention across the academic sector on the ethics of use and a great deal of alarm over how best to ensure academic integrity, proper citation, and fidelity of assessments. Conversations have also included some often-guarded acknowledgement of its potential for enhancing teaching and research, though there is a lot of uncertainty and considerable discomfort over what this looks like in practice. One way forward in this new space is to open the conversation widely for co-learning and experimentation.

This workshop is rooted in sharing a session led by two of the presenters for an undergraduate History Methods course in Fall 2023. The session used active learning activities to engage students and provide them with a structured forum for co-exploring the potential, benefits, and limitations of GenAI for historical research. Ongoing student engagement with GenAI helped students see/experience its formulaic responses and the blandness of its writing quality, which led them to develop and articulate their own nuanced and thoughtful responses.

Workshop attendees will have the opportunity to experience a modified version of the GenAI session, which may inspire approaches for their own classroom. The modified session will involve groups comparing two GenAI platforms (ChatGPT and Perplexity), trying to “break” GenAI by using leading prompts to force it to support one side then the other when confronted with a binary argument. There will be an opportunity through a “chart paper tour” to see the documented experience of other attendees.

The session will conclude with a share back period for attendees and further reflections from the authors on the Fall 2023 session, and their ongoing teaching and engagement with GenAI in Winter 2024.

Attendees will understand: GenAI as refined text predictor, not thinker. Possibilities for GenAI as part of the research/thinking toolkit. Critical interrogation of GenAI outputs.

Please come to this session with a laptop, and if you have an account, readiness to log in and use ChatGPT, Microsoft Copilot, or Perplexity.

Takeaways:

- GenAI is offered through multiple different platforms (e.g. ChatGPT vs. Perplexity). When students compare results to the same prompts across more than one platform, they gain a greater understanding of how GenAI works.
- GenAI has use and limitations in the early stages of the research process. Having students try to bias GenAI responses with slanted prompts helps them see these limitations.
- Using GenAI as part of research helps undergrad students see research as a process and provides a qualitative experience to distinguish between early stage surveying and later stage deep analysis.

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Session 206: Panel Discussion - Reflecting on First Year Student Engagement in an Anxious World

Stacy Denton, English Language & Literature, University of Waterloo

Greg Andres, Philosophy, University of Waterloo

Barbara Bloemhof, Economics, University of Waterloo

Carmen Celestini, Religious Studies, University of Waterloo

Onyeka Ezeh, German & Slavic Studies, University of Waterloo

Noorin Manji, Stratford Programmes, University of Waterloo

Engagement in the university context is a key indicator of student success and well-being. This is particularly noteworthy in the first year of postsecondary education, where engagement correlates to a number of success indicators in broader academic contexts, from attrition rates to the meanings students derive from their university experiences (Kahu & Nelson, 2018; Kahu et al., 2020). While engaging students during times of transition in the field of education has always been a challenge, in recent years, there has been a noted increase in anxiety and uncertainty amongst university students due to several factors, from experiences of the pandemic to local and global crises (Macdonald, 2022; Medaris, 2023). In these contexts, such anxiety has led to higher levels of stress among younger demographics, further impacting their academic focus and motivation (American Psychological Association [APA], 2023). How, then, can instructors effectively spark engagement among a distracted demographic, specifically during their transition into university? What does engagement even look like in this contemporary context (Groccia, 2018; Gourlay, 2015; Korhonen et al., 2019)?

This panel of Arts First lecturers will discuss the recent challenges that they have experienced with student engagement in first-year seminars intended to strengthen communication skills and student agency via active learning environments. As part of this discussion, panelists will also highlight issues of defining engagement, how student dis/engagement transforms learning environments, and some of the most successful teaching strategies that they have employed in attempting to engage students. By the end of the session, the audience will also be prompted to reflect on their own challenges and successes with student engagement, creating connections to their experiences in the first-year classroom and beyond.

Takeaways:

- In recent years, there has been an increase in anxiety and stress for students and faculty who are working in highly charged, transitional postsecondary contexts.
- Despite the challenges within first-year classrooms, there is ample opportunity to transform the way we think about and ignite engagement within active learning environments.

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Session 207: Panel Discussion - Engaging Instructors and Students in Transformative Learning amid Polycrisis

Tim Alamenciak, School of Environment, Resources, and Sustainability, University of Waterloo

Steffanie Scott, Geography and Environmental Management, University of Waterloo

Engaging students at a time of increasing climate chaos and global conflict is challenging for instructors across disciplines. The Work that Reconnects (Macy & Johnstone 2012; Macy & Brown 2014) is a pedagogical approach that engages learners in exercises that speak to the condition of someone grappling with global catastrophe with the goal of prompting transformative learning. This workshop introduces the Work that Reconnects through exercises around its four themes: gratitude, honouring our pain, seeing with new and ancient eyes, and going forth. Participants will use sharing circles, open sentences and paired conversations to experience this approach.

These practices can help instructors achieve learning objectives, engage students, and tend their mental health in the process. Research into the effectiveness of the Work that Reconnects found participants experienced transformative learning and reported feeling a greater sense of connectedness and motivation to take environmental action (Hathaway 2016). Student-led talking circles have been found to increase engagement and connectedness in the university setting (Chacon et al 2023). Guided meditations have been used effectively to promote positive mental health outcomes and engage students (Gardner & Kerridge 2019).

The workshop instructors have experience applying the Work that Reconnects in academic and community settings.

Takeaways:

- Teaching in the midst of global catastrophe requires engagement beyond solely the cognitive domain to include the emotional, psychological and embodied faculties of students.
- Practices like paired conversation, talking circles and guided meditations can increase student connectedness and engagement, and lead to transformative learning.
- Participants will be oriented to an extensive open resource library of practices to incorporate the Work that Reconnects into their classroom.
- Participants will confront their eco-grief and burnout in a supportive environment and emerge feeling empowered to continue working for change.

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Session 208: Workshop - Experiencing Resilience Using the LEGO Serious Play Method

Nadine Ibrahim, Civil and Environmental Engineering, University of Waterloo

Instructors strive to find creative ways to teach complex or abstract concepts in their courses by sharing real world examples, and introducing hands-on activities to demonstrate their applications. Experiential learning using physical models to engage learners is a method that encourages team discussions which enrich the learning process. Using LEGO bricks to spark creativity is a way of learning through play to engage learners' ability to work with complex topics, and to create models and metaphors that are memorable. James and Nerantzi (2019) and James (2022) share inspirations using LEGO in higher education and leverage the LEGO Serious Play Method (Roos and Victor, 2018) to introduce activities for various topics that benefit from collective knowledge and sharing of new and diverse perspectives. This workshop is inspired by the theme of the International LEGO Serious Play conference in Billund, Denmark in 2023 on the topic of "Resilience through Play" and adapts an activity on resilience to engage workshop participants to find their own ways to introduce resilience into personal and technical contexts.

The workshop will introduce the concept of resilience from a personal perspective by defining personal resilience and encouraging participants to reflect on situations demonstrating resilience; and from a technical perspective by defining resilience in engineering and seeking examples from participants on resilience from their respective disciplines. The activity on resilience is to co-create an elephant that will then be subject to changing conditions. Participants will be sub-divided into groups with a set of LEGO bricks that will be used to build the elephant following the facilitator's step-by-step instructions. Upon the completion of the activity, participants will reflect on their constructed elephant, and will be prompted with guiding questions on how resilience comes into play and how they imagine incorporating this activity into what they teach in their respective disciplines.

Takeaways:

- Learning about resilience through play using LEGO bricks following the LEGO Serious Play method
- Reflecting on personal and technical resilience to imagine ways of incorporating resilience into teaching in various disciplines
- Using hands-on activities in experiential learning by creating models and metaphors to explain and demonstrate abstract and complex concepts

References:

- James, A. (2022) The Use and Value of Play in HE: A Study. Independent scholarship supported by The Imagination Lab Foundation. Available online at <https://engagingimagination.com>
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Plenary Session: 1:50pm- 2:40pm ET

Igniting Our Practice

Suzanne Kearns, Geography and Environmental Management, University of Waterloo

In her Igniting our Practice session, Suzanne will demonstrate how she uses gamification to leverage group interactions in my Fundamentals of International Aviation course, which in turns promote learner engagement. Along the way, you'll also learn a bit about some of the practices and challenges that make up the rich fabric of international aviation.

Craig Fortier, Renison University College, University of Waterloo

In Capital Vol 1, Marx explains the emergence of capitalism as the dominant mode of production through a chapter titled "The Secret of Primitive Accumulation." Given that it can be challenging working with 19th Century political theory, Craig works students through an interactive play where students themselves become the players. Monarchs, nobles, peasants, merchants, livestock all play their parts as he narrates the play as an adaptation of Marx's work. Filled with real-life props and comedic interludes, students will come to gain a greater understanding of the process of dispossession and proletarianization at the heart of accumulation - and will come to recognize these processes as familiar (though in a different form) in today's global economy.

Session moderated by Donna Ellis, Centre for Teaching Excellence, University of Waterloo

Concurrent Sessions (300): Thursday, May 02 (3:00pm - 4:00pm ET)

Session 301: Presentations

301a: Amplifying Voices of Disabled Students: Findings from the Ontario Summit for Students with Disabilities

Emma Collington, Biology, University of Waterloo

Samantha Fowler, Human Resources, University of Waterloo

As postsecondary education institutions across Ontario seek to improve accessibility and disability inclusion, the voices and lived experiences of students must not only be heard but also lead this progress. Diverse forms of engagement are needed to ensure effective facilitation of student's authentic lived experiences. The Ontario Summit for Students with Disabilities sought to create both a platform for community building amongst postsecondary students with disabilities, as well as forum for students to share their lived experiences. Stories shared during the Summit and through an online survey informed an anonymized, post-Summit report that highlighted the barriers experienced by students with disabilities, organized by the eight barriers described in the Accessibility for Ontarians with Disabilities Act (AODA) Postsecondary Education Standards. Developed by the Summit organizing team from STEM With Disabilities, this report provides a glimpse of equitable student engagement and the systemic barriers faced by postsecondary institutions across Ontario.

This presentation will share the findings and recommendations from this equitable engagement report as a tool to both inform and act as a catalyst for systemic change in Ontario postsecondary institutions. An evaluation of the Summit, including the successes and obstacles faced in engaging students, will be shared to provide context for the report and its findings. Using stories as data is essential to amplifying voices that have been historically marginalized and universalized. By the end of the presentation, you will understand the lived experiences shared at the Summit and have a deeper understanding of the vital importance of listening to student voices and lived experiences as a guide for accessible education.

Takeaways:

- The main takeaway of this session is an awareness of the report from the Ontario Summit for Students with Disabilities and the lived experiences shared within this report that resulted from equitable engagement of students with disabilities.
- A second takeaway of this session is an understanding of the vital importance of listening to student voices and lived experiences, and their value in leading disability inclusion and accessibility change on campus.

301b: Engagement Through History and Film: The Case of HIST 200 Online Course Redevelopment

Andrew Hunt, History, University of Waterloo

Yasser Abdelaal, Centre for Extended Learning, University of Waterloo

This session introduces a successful redevelopment project of an online History course employing technology to stimulate behavioral, cognitive, and affective engagement, limit transactional distance and maintain the engagement as a feedback loop throughout the course design and delivery. The session explores the design and development of the project using The User Experience Design for Learning (UXDL) design framework and Michael G. Moore's contributions on interaction in distance learning in which opportunities for engagement were manifested throughout the project. The session also showcases the student-centered, equitable and inclusive engagement strategies that are encapsulated in this online course development project.

In this session, we will explore how our project helps engage learners with history through film and lets them consider the ways in which film adds to our understanding of the past. The session will explain how the project engages the students by introducing them to the experience of viewing motion pictures through the lens of a historian, with the goal of keeping them engaged to help them to critically assess the historical films they watch. Learners engage in writing critical analytical film reviews during the term. They also participate in online discussions with their peers, thus encouraging more interactive learning. Assessment activities are designed in an engaging way to give them the opportunity to reflect on what they are reading, learning, and watching through a myriad of interactive activities and tasks to help engage them throughout the experience. The session will also share practical tips for creating inclusive online environments that engage learners from diverse backgrounds and experiences by curating diverse materials from different countries, ethnicities, and cultures and helping diverse learners explore critical themes such as race and race relations, gender, religion, politics, social class, war, and memory from various perspectives.

Takeaways:

- This session will introduce methods of online engagement through the blending of different disciplines in the humanities, including History, film studies, and cultural studies.
- This session will discuss engaging assignments that encourage students to blend analytical skills and creative thinking to develop a deeper understanding of cinema in a historical context. If someone were unable to attend, what key research findings/practical experiences would you want them to know? Key research findings include discussing pedagogical approaches to engaging students through online learning on a variety of topics, including History, film studies, cultural analysis, and exploring topics through such frameworks as race, class, and gender.

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301c: OERS and UDL in Recreation Studies: A Careful Waltz or Freestyling Jive *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Brendan Riggan, Recreation & Leisure Studies, University of Waterloo

Brandon Dickson, Centre for Teaching Excellence, University of Waterloo

Donna Kotsopoulos, Western University

Boba Samuels, University of Toronto

Jasmine Nitsotolis, Western University

Universal Design for Learning (UDL) provides learners with multiple ways to engage with, represent, and express material and plays an important role in creating an accessible learning environment (Coffman & Draper, 2022). One method by which UDL can be supported is through the use of Open Educational Resources (OERs), which are publicly available materials such as podcasts, videos, and readings made accessible to students (Wiley, Bliss & McEwan, 2014). Partly as a result of their inclusive nature, OERs have been shown across a variety of disciplines to increase student course achievement (Jhangiani et al., 2018). Students have reported a preference for digital OERs (Barneva et al., 2018). Thus, course instructors interested in supporting accessibility and learners' preferences may wish to apply the principles of UDL through the use of OERs (Hilton and Wiley, 2011).

In this research-informed, practice-oriented presentation, we describe the early stages of our Learning Innovation and Teaching Enhancement seed project developing two accessible courses in Recreation and Leisure Studies. The question guiding this project is: What challenges exist in creating a course of fully accessible resources? This presentation will introduce attendees to the benefits of OERs, the challenges associated with creating courses that are fully accessible using OERs (e.g., including availability of equivalent resources), and structuring teaching around broader themes instead of specific content. We will conclude with suggestions for navigating challenges through an action-oriented approach to OER integration. We will present preliminary student and instructor data on course implementation from the Fall 2023 and Winter 2024 term.

Our learning outcomes are that, by the end of the session, attendees should be able to:

- Understand the benefits and challenges associated with OERs;
- Select and integrate appropriate OERs in their own teaching;
- Apply an iterative process to evaluating and revising OER integration to support UDL principles.

Takeaways:

- OERs can support all learners and are an effective tool for instructors looking to integrate universal design components.
- Selection of appropriate OERs should focus on a diversity of relevant resources and iterative reflection on student access and usage.

References:

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Session 302: Presentations

302b: Playful Education: Cultivating Charitability and Fostering Student Engagement

Marco Tang, Philosophy, University of Waterloo

The adversarial dialogue is commonly seen as the correct teaching method in the social sciences and humanities, courses are set up in which individuals criticize and defend their views from others (Dotson, 2011; Kilby 2021; Gardner 2022). This method promotes an environment in which a learner's aim is to 'win' rather than to meaningfully collaborate with other learners (Baker, 2022). I aim to show that this 'intention to win' promotes a form of ignorance that cultivates a lack of charitability between learners. Furthermore, this uncharitable environment doesn't engage learners from different backgrounds and experiences. The second half of the presentation will provide instructors with a new lens to evaluate their assessment methods, activities and grading schemes. Although I mainly focus on the social sciences and humanities, the lens and practices I outline can be used in interdisciplinary studies, e.g., health policy. Borrowing from feminist philosophy, I utilize Maria Lugones' concept of play, and central to her concept is the ability to be wrong. I take this freedom to be wrong to be paramount in mitigating the aforementioned ignorance. Some of the recommendations are the following: pass/fail assignments, instructor-free group discussions and alternative end-of-term assignments. Removing the instructor and including pass/fail assignments creates an environment in which students will not hinder their grade. More specifically, this environment benefits student engagement and cultivates charitability as they are able to ask questions and lead the discussion to areas they find engaging even if their questions and insights may be incorrect. Furthermore, alternative end-of-term assignments allow students to choose assessment methods that are not the traditional essay or exam. While maintaining academic rigor, this opportunity allows students to choose assessment methods that are inline interests, ones formed by their distinct backgrounds.

Takeaways:

The session aims to

- explain one avenue as to why students may be uncharitable towards views they do not agree with or views in general;
- provide a theoretical framework for instructors to think about how they should create their methods of assessment; and
- outline some specific teaching methods to mitigate such uncharitability towards other views and foster
- meaningful dialogue and education.

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302c: Engaging Communities from Outside to Inside the Classroom: Co-Design Strategies for Active Learning

Linda Zhang, School of Architecture, University of Waterloo

This session explores how participatory action research methodologies can reshape classroom dynamics, promote active learning, and empower students by placing knowledge ownership in their hands, challenging traditional classroom hierarchies.

I will draw insights from a case study community research project I led entitled “Planting Imagination: Community Co-Design for Toronto’s Chinatown”. Planting Imagination utilized community action research methods, including Participatory Action Research (PAR), co-creation, co-production, co-design principles, and Arnstein’s ladder of citizen participation. These frameworks challenge traditional “extraction models” of research and knowledge creation, fostering sustainable positive change led by the community through knowledge co-creation and community ownership. This means always centring community members as knowledge carriers and experts (as opposed to the outsider academic researchers). This not only mitigates the power disparities between outside academic researchers and community members observed in community research (CR) and peer research (PR) models, but ensures that the knowledge generation is useful and usable by the learners.

Session learning outcomes include the following applications of these frameworks to inside the classroom:

- Who is the knowledge carrier in the classroom? How can we shift this from instructor to student to create more active learning?
- Practical “how-to” techniques for shifting towards a “facilitator” model for active learning/knowledge creation as opposed to the traditional model where instructors are assumed to be the carriers of knowledge that “teach” students (passive learning).
- How to ensure student ownership of knowledge, including the sustainable and long-term learning beyond the course through upskilling, leadership development, and legacy planning.

Relevant to the conference theme, “Engaging Communities,” this session bridges community engagement, participatory research, and innovative teaching practices. Attendees can expect to gain practical insights, strategies, and learning outcomes applicable to their own teaching and community engagement endeavors, fostering a collaborative environment for lifelong learning from outside to inside the classroom.

Takeaways:

- Rethinking traditional classroom hierarchies which may be standing in the way of deeper engagement and active learning.
- Positioning learners as active knowledge carriers and creators, co-creation and co-learning collaboratively.

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Session 303: Presentations

303a: How to Ask Questions so That Students Will Answer

Alicia Flatt, Co-operative and Experiential Education, University of Waterloo

Stephanie Bailey, Co-operative and Experiential Education, University of Waterloo

As Dale Carnegie advised in his 1936 classic *How to Win Friends and Influence People*, “Ask questions the other person will enjoy answering.” We know that questions have the power to ignite a student’s curiosity, spark active learning, and connect them to their class community. If we ask good questions, we get better answers. The question remains: how do we ask good questions?

In pedagogical discourse, the focus of asking effective questions tends to focus on the *how* — using different activities (e.g., think-pair-share, small groups, etc.) — or the *why* — articulating questions in relation to the level of learning you’re targeting, according to Bloom’s taxonomy (i.e., remember, understand, apply, analyze, evaluate). However, these strategies to asking questions are only meaningful if the question itself is phrased in a way that makes students feel safe and excited to answer.

During this session, we invite instructors to return to the basic art of formulating a question. How can we ask questions in a way that empowers students to answer? Using trauma informed positive education and strength-based approaches, we provide practical tips for how to nurture a culture of active engagement and participation not just by asking different types of questions, but by *asking questions differently*. Some prompts we invite instructors to consider: can learners participate without having to disclose weaknesses or deficits of understanding, but rather rely on the value of their experiences, insights, and critical thinking skills? (e.g. “Do you have any questions?” vs. “What can I clarify?”)? Does this question avoid potentially activating negative feelings/memories? Does this question allow for accommodation? Can everyone participate?

Connection to theory

Over the last decade, trauma-informed care has become a popular approach within specific contexts, namely health care, primary education, and foster care. Trauma-informed care is increasing within higher education as a way to better provide access and services to those who have experienced trauma, especially for students within marginalized groups (**Henshaw, 2022**). The literature on trauma-informed care within higher education has been taking shape, with major publications expected shortly (e.g. Shalka, T. R. (2024). **Cultivating Trauma-Informed Practice in Student Affairs**). The trauma-informed positive education model promotes a pull away from a deficiency mindset and encourages instructors to engage in a strengths-based approach when teaching in the classroom (**Brunzell, Stokes, & Waters, 2016**). We will refer to the TIPE model and the growing body of research to inform our thinking about articulating trauma-informed questions and icebreaker prompts.

When it comes to guidance on developing questions, the existing practical resources in the field of educational development tends to focus on two aspects of question asking: the *how* — by organizing different types of activities e.g., think-pair-share — and the *why* — to address learning outcomes with regards to Bloom’s Taxonomy. Find relevant resources below:

- **Using effective questions** – Center for Teaching Innovation, Cornell University
- **Solving a Teaching Problem: Students don’t participate in class discussion** – Eberly Centre, Teaching Excellence & Educational Innovation @ Carnegie Mellon University
- **Asking Questions: Six Types** - Centre for Teaching Excellence, University of Waterloo
- **Questions/Activities for Large Classes** – Centre for Teaching Excellence, University of Waterloo
- **Icebreakers for Online Classes** – Centre for Teaching Excellence, University of Waterloo

We seek to fill a gap in these approaches to address the concern of *what* of question asking, examining the content and structure of the questions themselves. Drawing on the principles of TIPE, we ask: How can we formulate the question differently so that students *enjoy* answering to spark and sustain engagement? How can we structure the question to avoid forcing students to disclose their perceived deficiencies? How can we ask questions in a way that creates safe and supportive opportunities for students to highlight their strengths rather than their weaknesses?

Session Takeaways

- The way we frame and articulate questions and icebreakers is key to establishing psychological safety in the classroom.
- Drawing on the principles of trauma-informed positive education (TIPE), asking questions that allow students to highlight strengths rather than deficiencies will prompt more student engagement and participation.

References

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303b: Using Two Stage Testing and Immediate Feedback Assessment Technique Cards to Enhance Engagement and Learning

Jacqueline MacDonald, Biology, University of Waterloo

Jason Thompson, Centre for Teaching Excellence, University of Waterloo

In many courses, typical feedback on tests/exams tends to provide insights that focus on the product/end-result and rarely engages students in a subsequent and important learning process (Cobbold & Wright, 2021). Moreover, many students often do not opt to review their test results and feedback at all (MacDonald, 2023). In contrast, educational research suggests engaging with formative feedback is one of the most effective ways to improve student performance (Cobbold & Wright, 2021; Boud & Molloy, 2013). Furthermore, implementing two-stage testing can be an effective way to increase retention of concepts by incorporating a formative assessment process into a traditional summative test (Gilley & Clarkston, 2014). Two-stage tests involve individual test-taking followed by collaborative/group test-taking where students review the test immediately and engage in formative feedback with their peers.

Participants will learn about the implementation of a two-stage midterm in a 2nd year Biology course. Student in the course stated the group-test helped them; feel more confident about their content knowledge (74%); and understand the content better through listening to their groupmates (88%), explaining to their groupmates (85%), and discussing with their groupmates (94%).

This presentation will also showcase the use of Immediate Feedback Assessment Technique (IF AT) cards; a low-tech, tactile way to provide instantaneous feedback to students during the collaborative assessment period. This interactive tool promotes real-time correction of misconceptions while encouraging active participation, critical thinking, and social engagement with their peers, an increasingly necessary element for our post-pandemic students.

Presenter experiences, logistics of set up, and results from a student survey will be shared.

Upon completion of this session, participants will be able to:

- Describe the benefits of incorporating two-stage testing & use of IF AT cards in a course.
- Implement two-stage testing & IF AT cards in their course(s) to help spark and sustain student engagement.

Takeaways:

Two-stage testing:

- Obligates students to get formative feedback on their tests.
- Engages students with peers and a fun activity.
- Encourages students to learn, ask questions, and in some cases change their study habits.

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303c: Evaluating the Impact of an Online Educational Tool for Fostering Constructive Dialogue in the Classroom *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Dane Mauer-Vakil, School of Public Health Sciences, University of Waterloo

Kelly Anthony, School of Public Health Sciences, University of Waterloo

There is an expanding literature demonstrating the impact of students' self-censoring in the classroom amid fear of speaking out. For example, in an American survey, students reported significant fear of making a 'mistake' when speaking in class and there is no reason to believe that this is unique to the United States. When students are fearful of 'making mistakes' or 'saying the wrong thing,' the very foundation of learning is significantly hindered largely because student engagement is reduced.

Students must feel that classrooms are welcoming, engaging spaces for respectful, diverse discussions. In this mixed methods, LITE grant-funded study, we are currently conducting an empirical investigation into the impact of a psychology-based educational tool for fostering constructive dialogue on student learning experiences. The innovative, evidence-based learning approach, called 'Perspectives,' was created by the Constructive Dialogue Institute (CDI). CDI strives to translate rigorous behavioural science research into educational tools that are evidence-informed, practical, engaging, and scalable for equipping students with skills for constructive communication. In this presentation, we will present preliminary results of our research pertaining to student experiences using the CDI modules in a second-year undergraduate public health course (sample size of 150). This tool helps foster deeper learning by aiding students in cultivating intellectual humility, welcoming and exploring diverse perspectives and worldviews, managing emotions and obtaining mastery in difficult conversations.

In addition to presenting our study results, we will walk instructors (conference attendees) through the process of considering this tool's relevance for their teaching purposes, its implementation in the classroom, introducing it to students and getting buy-in, and explaining and assessing the tool's impact. Our learning outcomes include clear understanding of the CDI tool and its purposes, most effective classroom use and assessment strategies, and specific, simple steps for implementation.

Takeaways:

- Instructors will gain a clear understanding of the CDI tool and its purposes, most effective classroom use and assessment strategies, and specific, simple steps for implementation.
- Instructors will have a tool to increase dialogue in the classroom that allows for diverse viewpoints in a caring, kind, atmosphere.

References:

- Duong, M., Welker, K., & Mehl, C. (2022). *Turning Down the Heat on Campus: How an Online Educational Program Can Reduce Polarization and Improve Dialogue in College Classrooms*. The Constructive Dialogue Institute: New York, NY, USA, 22.
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304a: Engaging Large Classes through Demonstrations

Matthew Robbins, Physics and Astronomy, University of Waterloo

Especially for early-morning or late-afternoon classes, it can be difficult to achieve and maintain classroom engagement throughout the semester. Wiley's recent white paper on *The State of the Student (2022)* has also reported that both instructors and students find classroom engagement to be a major challenge. This raises the question of how instructors can structure classes to improve student engagement. In physics, a common strategy is to use demonstrations (see, for example, *Interactive Lecture Demonstrations: Active Learning in Introductory Physics* by David R. Sokoloff and Ronald K. Thornton). Significant learning gains can occur using this method (*Phys. Rev. ST Phys. Educ. Res.* 6, 020119 (2010)), though a common critique of demonstrations is whether they are being used as entertainment, or whether they are being used to foster student learning. For such learning improvements to occur, students should be actively involved by first predicting the outcome of the demonstration, rather than being a passive observer (*Am. J. Phys.* 72, 835–838 (2004); *Phys. Teach.* 51, 570–571 (2013)). In this talk, I will discuss how I use demonstrations in my large first-year physics classes and how this strategy can be adapted to other first-year courses. I will explain how to evaluate the usefulness of different demonstrations and ways to accommodate the various constraints that may be encountered. By bringing some of my demonstrations into the talk, I will show how I have used them to improve classroom engagement and I will discuss the lessons learned. By the end of this presentation, attendees will know how to select demonstrations for their courses and different ways in which demonstrations can be used to foster classroom engagement.

Takeaways:

- Demonstrations help foster classroom engagement/attendance by encouraging students to attend and pay attention in classes that are at non-ideal times.
- The ideal demonstrations are ones that students can do at home or ones that can be used multiple times (either within the same lecture or across multiple lectures) to illustrate different concepts.
- Demonstrations can be used to illustrate both quantitative and qualitative features (depending on the desired learning outcomes).

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304b: Strategic student engagement: enhancing courses through pilot testing during development.

Evana Delay, Centre for Work-Integrated Learning, University of Waterloo

Felicia Pantazi, Centre for Work-Integrated Learning, University of Waterloo

Trish Owens, Centre for Work-Integrated Learning, University of Waterloo

Engaging with students prior to course offering through pilot testing is beneficial in the development of a course. Literature demonstrates the importance of testing content beyond the user experience and usability testing (i.e., course navigation), and while important, these forms of testing do not assess the usability of the learning experience and teaching materials (Becksford, 2021). Akpinar's (2008) research shows that the usability findings for a learning object are not significantly correlated with students achieving the learning outcomes within an assessment. To address the gaps outlined above, the Centre for Work-Integrated Learning (CWIL) conducts pilot testing to evaluate students' performance when engaging with the course content and assessments.

Professional Development (PD) courses at the University of Waterloo (UW) are offered by CWIL to undergraduate students registered in co-op and EDGE (an experiential education certificate program). Course registration is very high; in 2023, there were 24,192 students enrolled in all PD courses, with termly enrolments up to 1,900 students in a single course. With such high enrollment, to ensure that new (or redeveloped) courses are well-designed and run as smoothly as possible, we engage with students as mock students and mock markers during pre-offer terms.

Mock students engage with course content and assessments as students would in-term. Mock markers review and grade assessments submitted by mock students. Both groups provide feedback on time spent, clarity of assignment instructions, and effectiveness of rubrics in providing guidance for expectations. This feedback is reviewed by the development team and course updates are implemented. This process not only identifies refinements to be made to ensure alignment but helps simplify and calibrate the grading process pre-offer.

By engaging with and obtaining feedback from students during pilot testing, we ensure that the quality of the content is high, the learning outcomes are achieved through properly designed assessments, and usability is tested (e.g., course navigation, assessments instructions).

Takeaways:

- Understand how courses can be enhanced by strategically engaging students through pilot testing during course development
- Understand and utilize some of the pilot testing planning and execution techniques within their own courses/contexts

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304c: Strategic student engagement: enhancing courses through pilot testing during development.

Barbara Bloemhof, Economics, University of Waterloo

This presentation explores fostering student engagement by crowding out lecturing with experiences of the content. Two experience options are simulations (interactions that replicate rules-bound strategic elements of the naturally occurring human systems they represent; see Garris and Ahlers 1989:443, citing Crookall and Saunders 1989), and classroom experiments (controlled market situations that present students with incentives and economic choices highlighting insights about rationality, power and self-interest; see Bergstrom and Miller 1998). In this presentation I share a simulation and two experiments that I use in an Arts First seminar that foreground the complexity of human behaviour in the economy. When followed by debriefing or integrative reflection about the knowledge represented in the experience, mindfully redirecting students' expectations not only leverages curiosity and engagement to generate durable learning, but also shapes students' own conception of learning (Kolb 1984). On average, learning seems at least as salient as textual close reading, and may provide insights that would not be available in more traditional instructional approaches (Hofstede et al. 2010). The challenges that come with this opportunity include managing the possibility that with so much in students' hands, some knowledge might be missed. Creating experiences with strong fidelity to the learning goals contributes to knowledge objectives. We will look at some suggestions of intelligent ways to shape unscripted learning experiences in real time. On balance, the benefits of providing experiences that empower students to take ownership of their learning and to think like an economist, make simulations and experiments worth trying.

Takeaways:

- Experiences (simulations, thought experiments, auctions, and so on) provide durable learning that engages the affective as well as the cognitive domain.
- There are many simple low-tech activities that can be used in the classroom, with the caveat that they should always adhere to the principle of being highly germane to the learning.

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Session 305: Workshop - Integrating the SLICC Reflective Framework: How Self Directed Learning Promotes Student Engagement

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

Emma McDougall, Political Science, University of Waterloo

As educators, we want students to be effective self-directed learners with the capacity to thrive in our volatile, uncertain, complex and ambiguous (VUCA) world. Self-directed learners are more aware of how they learn (Morris, 2019), making them more successful at adapting to change (Jossberger et al., 2010), learning new skills, and charting their career path (Barnes, 2016; Morrison & Premkumar, 2014). Now, more than ever, students need to be given the opportunity to engage in self-directed learning (SDL) (Brandt, 2020). However, for SDL to be successful, it must be implemented through a scaffolded and flexible framework that promotes ownership and autonomy, while also being supportive, to ensure students are motivated to reach achievable goals (Lunyk-Child et al. 2001).

Our workshop explores the Student-Led Individually Created Course(SLICC) reflective learning and assessment framework, a self-directed learning approach that gives students the opportunity to co-construct, plan, implement, self-assess, and reflect upon their learning process, while being provided with feedback and support as required. SLICCs focus more on the process, rather than the product, of learning, making the framework discipline-agnostic, and the lessons learned transferable. Developed by the University of Edinburgh, the SLICC framework has been adapted and successfully integrated into over a dozen courses from diverse disciplines at the University of Waterloo. Through our work with SLICCs, we have gained new insights into student engagement, autonomy, and ownership - capacities that are often missing from traditional courses.

We will explore the importance of SDL for student success and motivation. We will review the SLICC framework and the role it plays in fostering student engagement and enhancing students' ability to become effective self-directed learners. And we will highlight the SLICC framework's inherent flexibility by reviewing the different ways in which it has been successfully integrated into courses and programs at the University of Waterloo.

Takeaways:

- Why self-direct learning and its associated competencies are essential for student's personal growth
- How SLICCs foster student engagement throughout the SLICC process
- What the SLICC framework is and how instructors could implement it in their own courses

References:

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Session 306: Panel - Champion Teaching Effectiveness: A Tale of Fostering Engagement Across Six Faculties

UW Teaching Fellows

Carolyn MacGregor, Systems Design Engineering, University of Waterloo

Elena Neiterman, School of Public Health Sciences, University of Waterloo

Diana Skrzydlo, Statistics & Actuarial Science, University of Waterloo

George Lamont, English Language & Literature, University of Waterloo

Christine Barbeau, School of Environment, Resources, and Sustainability, University of Waterloo

Robert Hill, Physics and Astronomy, University of Waterloo

To spark and sustain engagement in our students for their learning, we must also spark and sustain engagement in teaching among our instructors. In a large institution serving multiple disciplines, is there a common approach to championing more effective teaching while still retaining localized practices? Through this interactive panel session, we will highlight and explore practical strategies for promoting and fostering instructor engagement at the department, faculty, and institutional levels. Drawing from the experiences of the University of Waterloo Teaching Fellows representing six faculties, we will share how we identify timely teaching topics (e.g., quick polls); how we build collective knowledge around new tools (e.g. generative AI, across-campus adoption of teaching tools, such as Outline for generating course outlines); how we engage with others to build teaching communities of practice (e.g., hybrid Open-Chats); and how we collaborate as an interdisciplinary group to find common ground around strategic teaching initiatives (e.g., leveraging our networks of support to widen our knowledge base). We will share successful (and some not so successful) instructor engagement strategies, reflect on some of our challenges as champions of teaching, and provide examples of interdisciplinary collaboration enriching teaching practices. This panel aims to inspire innovative approaches to teaching effectiveness and contribute to the development of a university-wide culture of engaged teaching. We want you to take-away practical ways that you can use to build your own collaborative network for teaching topics that matter to you.

Takeaways:

- A culture of collaborative teaching champions starts with conversations both formal and informal.
- Sustainable teaching engagement requires coordinated efforts at departmental, faculty, and university levels.
- The promotion of teaching effectiveness is best if respectfully shared in terms of higher-level principles and adapted for local contexts.

Session 307: Alternative Session - Learning to Bounce: Fostering Engagement by Addressing the Emotional Demands of Academics

Melissa Beacom, University of Guelph

Tara Embrey, University of Guelph

Christopher Laursen, University of Guelph

Aron Fazekas, University of Guelph

Educational and wellness experts have teamed up to build a more holistic approach to campus wellbeing for students and instructors. Integrating wellness, resilience, and accessibility into pedagogy and curriculum sparks and sustains engagement. We will share our efforts and goals in this work. Then, participants will actively explore how these emerging approaches to wellbeing and belonging could be authentically integrated into post-secondary institutions.

In 2022-24, through a learning enhancement grant, we piloted a practical psychotherapeutic program designed by occupational therapists for students experiencing mental health concerns. Our curriculum applies mental health tools to the academic context and fosters a supportive community where students recognize they are not alone in their struggles, shifting emphasis from individual pathology to imperfection as part of the human condition. We challenge the culture of perfectionism in academia, normalize the emotional demands of academics, and introduce skills to spark engagement. Separating self-worth from performance frees participants to focus on learning, making it less scary to start, reducing procrastination and shame. In addition to group sessions, we provide opportunities to apply skills through weekly study hall and counselling. This program has shown exciting results in improving mental health, belonging, academic functioning, and engagement, which we discuss in this session.

We will examine how these student-centred approaches translate into emerging teaching and learning centred pedagogical wellness programming where instructors similarly find community and tools to better manage their workloads and self-care. When combined, we propose these approaches provide an essential enhancement to sustained engagement in teaching and learning.

Workshop attendees will work through ways that academia creates a culture of perfectionism and performance and how we can begin the shift towards curiosity, learning, and growth. We will ask attendees to reflect on the emotional skills required to work through an academic task and how to develop these skills.

Takeaways:

- Relate student and instructor wellness as integral to sustaining engagement.
- Consider the underlying emotional demands of academic work and what has been helping participants in the program get unstuck and engaged in learning.
- Consider the impact of shame on learning and the healing power of community for students with mental health concerns.
- Recognize some root causes of perfectionism and procrastination in academia.

References:

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Session 308: Workshop - Using Self Evaluation to Spark and Sustain Student Engagement with Transdisciplinary Research *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Chloé St-Amand, School of Environment, Resources, and Sustainability, University of Waterloo

Mathieu Feagan, Knowledge Integration, University of Waterloo

The need to build transdisciplinary research capacity within the next generation of students has long been identified, especially in the context of real-world challenges that require teams actively working to combine and apply different types of expertise and skillsets in equitable and transformative ways. Yet, despite certain improvements, research into student experience suggests that further institutional change is needed to confront the dominant disciplinary structure of academic knowledge, harness the systemic insights and value of student knowledge, and provide supportive spaces in which students and early career professionals can develop their own transdisciplinary capacity. This is where scholarship on self-evaluation may have important insights: if incorporating self-evaluation into learning environments helps students process, make meaning, and engage, could self-evaluation also help students engage with building their own transdisciplinary team-based research capacity? We show how a student-created self-evaluation rubric helped a team of five students from different institutions and academic programs conduct a 10-week transdisciplinary research project working on issues of urban sustainability in Guayaquil/Durán, Ecuador.

We begin the workshop with definitions of self-evaluation and transdisciplinarity. Next, we present findings from our qualitative analysis of students' research experiences, suggesting that self-evaluation plays a key role in countering certain internalized disciplinary forms of training, while supporting students' abilities for self-direction in articulating, revising, and reflecting on their transdisciplinary goals. Then, we walk participants through an activity for designing their own self-evaluation rubrics, which could be used either in the classroom or in the field. Finally, we discuss certain limitations of our research, opening a broader conversation about using self-evaluation to support student engagement in teaching and research. We expect that participants will walk away with some concrete examples of different applications of self-evaluation, which they can apply in a variety of transdisciplinary and collaborative work contexts.

Takeaways:

- Self-evaluation applies beyond the classroom and can help build student-led transdisciplinary research capacity.
- More research and experimentation is needed to understand the advantages and disadvantages of different ways of incorporating self-evaluation into transdisciplinary group processes.

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Concurrent Sessions (400): Thursday, May 02 (4:20pm - 5:20pm ET)

Session 401: Presentations

401a: Critical Thinking for Promoting Student Engagement with Their Learning

Rania Al-Hammoud, Civil and Environmental Engineering, University of Waterloo

Christine Moresoli, Chemical Engineering, University of Waterloo

Richard Li, Centre for Teaching Excellence, University of Waterloo

Critical thinking has attracted considerable attention over the years from a variety of stakeholders including researchers, instructors, employers and academic institutions. It is one of the determinants identified in the recently established framework at the University of Waterloo, Waterloo Student Experience & Engagement (WatSEE). In the context of learning, critical thinking can be a strategy for promoting student engagement specifically with course content, their peers and the instructor. It can also encourage deep learning and lifelong learning such as information search and analysis and problem solving and reflection.

In this presentation we will share some definitions of critical thinking and how they relate to higher order thinking skills. We will explain how we have intentionally integrated critical thinking in our teaching to promote student engagement in their learning. We will share two specific examples of critical thinking in first year Engineering courses at the University of Waterloo. One example relates to a mechanics course in the Civil Engineering program. In this course, students were asked to design a playground for a school in the Waterloo region. Students, working in small groups, proposed and presented an initial playground concept to the school which was then revised by the students according to the feedback received from the school. The second example relates to the Engineering Biology course in the Chemical Engineering program. Students had to select a specific bio related technology and research the benefits, risks, drawbacks and potential issues of the technology and defend their perspectives in a debate held during class time. Students had to identify and consult a variety of information sources to develop their arguments. We will conclude the presentation with some suggestions for instructors to integrate critical thinking in their teaching.

Takeaways:

- Concepts of critical thinking and how it can promote student engagement.
- Tools and strategies instructors can use to promote critical thinking in their courses.

References:

- Waterloo Student Experience & Engagement (WatSEE) report. November 2023.
<https://uwaterloo.ca/provost/sites/default/files/uploads/documents/watsee-nov-2023.pdf>

401b: Investigating the Teaching and Learning of Science Communication Skills at Undergraduate Science Programs

Faraj Haddad, Western University

Austin Robertson, Western University

Rasbir Marwaha, Western University

Karen Huo, Western University

Nicole Wieland, Western University

Haoming Tang, Western University

In the age of the internet and social media, engaging the general public with accurate scientific knowledge has become increasingly difficult, especially in a media landscape riddled with misinformation and disinformation[1]. To deal with these challenges, it is essential to improve the ability of scientists and healthcare professionals to communicate their findings to the public.

Teaching these skills at postsecondary institutions, where scientists and healthcare professionals complete their foundational training, can provide an engaging learning experience for students with authentic assessments that directly relate to their lives and future careers. However, it is currently unclear when, where, and how these communication skills are taught and learned in postsecondary education.

Therefore, we decided to investigate the teaching and learning of science communication skills at the undergraduate level through a systematic review of the literature on science communication-related coursework and a close inspection of course outlines at a large undergraduate medical sciences program in Ontario.

By the end of the session, attendees will be able to:

- Explain the importance of teaching science communication skills, particularly those geared to general audiences, in postsecondary classrooms.
- Describe the extent to which science communication to general audiences is taught at the presenter's undergraduate science program and reflect on how this is done at one's own institution.
- Compare and evaluate approaches to teaching science communication that have been published in the postsecondary education literature.

Overall, teaching science communication skills can simultaneously engage both students and communities. On one hand, students are likely to engage with this material as it directly relates to scientific information they regularly consume through news and social media. On the other hand, the development of these skills will promote better engagement with communities as students can better communicate their scientific knowledge with diverse audiences throughout their personal and professional lives[3].

Takeaways:

- Few undergraduate courses at the science program that was investigated in this study taught or assessed science communication to general audiences.
- Various publications in the literature have demonstrated the positive impact of teaching science communication skills, showing consistent student engagement and professional development, enhanced learning of scientific concepts, and in some cases, direct community engagement through involvement of local community members in the evaluation of students.

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401c: Creating Inclusive Research Opportunities for Biomedical Sciences Undergraduates

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Sarah Sabatinos, University of Toronto

Undergraduate students greatly benefit from experiential learning in research labs, although such opportunities are often limited. Remote research has been demonstrated as a viable and inclusive means for students to gain experience. It allows participation despite geographical or financial constraints and offers flexibility for those with other obligations. Conducting research outside of a physical lab presents challenges, including reduced social interactions and collaboration, which can impact scientific self-efficacy and identity (Hess, 2022; Erickson, 2021). Near Peer Learning (NPL) addresses these challenges by having more experienced students mentor trainees, reducing anxiety and enhancing understanding. Benefits of NPL include increased competency for both learners and near-peers (Bester, 2017; Irvine, 2017). The effectiveness of NPL depends on the near-peers' knowledge and interpersonal skills, necessitating well-structured curricula and oversight (Shapiro, 2013).

We have created a remote lab division in the biomedical research labs of Drs. Antonescu and Sabatinos to provide students with more inclusive ways to gain research experience. The wet lab generates microscopy images requiring processing, while the remote lab carries out data analysis. Structured modules were used to train students and contextualize the data they processed. Small research groups, facilitated by trained near-peers, promoted collaborative efforts. Weekly lab meetings further supported training in experimental research. We demonstrate that using near-peers and structured modules, remote labs can successfully foster growth in scientific efficacy and identity development. Students report feeling more connected, confident, and competent. Overall, these remote research opportunities provide inclusive experiences that foster comprehensive student development.

By the end of the presentation, participants should be able to:

- Articulate the barriers to research opportunities from the lab and student perspectives.
- Describe the benefits and limitations of remote lab research.
- Outline the strategies used to support learning in a remote research environment.

Takeaways:

- Remote research opportunities allows a diversity of students to participate regardless of geographic, financial, or situational obligations.
- Near-peer learning benefits both mentors and mentees in scientific development and non-scientific competencies.
- Outline the advantages and challenges of near-peer learning in undergraduate research experiences.

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Session 402: Presentations

402a: Engaging UW Alumni: Proposing a Value Proposition Based on COVID-19 Lessons Learned

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David Drewery, Work-Learn Institute, University of Waterloo

Keith Soares, Work-Learn Institute, University of Waterloo

Katelyn Gordner, Faculty of Health, University of Waterloo

Anne-Marie Fannon, Work-Learn Institute, University of Waterloo

Janice Bruin, Co-operative and Experiential Education, University of Waterloo

Tijhiana Thobani, Faculty of Health, University of Waterloo

The COVID-19 pandemic took a significant toll on people's physical health but, perhaps even more far reaching was the toll on mental health. The lockdowns, shutdowns, and hunker downs imposed significant changes to the way we learn and work, imposing remote learning, working from home, financial distress, endless news stories about people getting ill contracting the virus and/or dying from the virus causing uncertainty, anxiety, depression, and burnout. Given the contemporary context emerging from the pandemic it is incumbent upon us to reflect on what have we learned? While framing a business case for departmental programs on university campuses emphasizing metrics and rankings has been traditionally prioritized to help students decide where to study, perhaps embracing some of the lessons learned from the pandemic, a value proposition may be more appropriate, resonating with Generation Z students and their supporters. A value proposition embraces a qualitative understanding about the unique experiences gained and values associated with degree programs on offer. To examine this more closely, the research team engaged alumni via focus groups to explore the values associated with their degree programs specifically examining the value proposition of their degree program, to what extent domains of life other than work are revealed in the values they associate with their degree, and what role does co-operative education and/or work-integrated education contribute to their value proposition. This analysis is aligned with the 'engaging communities' thematic area of the conference, specifically considering how programs foster the skills of life-long learning so graduates are equipped with the skills to not only contribute to the workforce but also take care of themselves and their communities, especially during moments of uncertainty, unpredictability, and crisis.

Takeaways:

- Important distinction between building a business case for an academic program and a value proposition.
- The unique experiences expressed by RLS alumni.
- Program support equipping students with life-long learning skills.

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402b: Well-Being in Student Education and Research (WiSER)

Carrie Mitchell, School of Planning, University of Waterloo

Katie Plaisance, Department of Knowledge Integration, University of Waterloo

Christine Logel, Renison University College, University of Waterloo

This talk provides an overview of a new initiative that we are in the process of implementing and pilot testing in our Faculty: Well-being in Student Education and Research (WiSER). WiSER aims to help students move from surviving to thriving by incorporating pedagogical practices that have been shown to improve student engagement, belonging, and well-being. In this talk, we will focus on the motivation and research behind this initiative and share resources that any instructor can use in their own courses.

Recent research has demonstrated that student engagement, belonging, and well-being are all strongly connected (Gopalan & Brady, 2020; Wong et al. 2024). What's more, studies have also shown that fostering belonging leads to more equitable outcomes (Murphy et al. 2020; Walton et al., 2023). WiSER draws upon this research to put well-being front and center in student education and research. We will discuss how we are implementing and assessing the initiative as well as how it could be scaled to other Faculties across campus.

The WiSER initiative connects to multiple themes of the conference, including: 1) how higher education institutions can create inclusive environments that engage learners from diverse backgrounds and experiences, and ensure equitable access to quality education; 2) how we can foster engagement and reconnect with our students after disruptions in the teaching and learning environment; and 3) how we can create and nurture students, faculty and staff members' sense of belonging to their programs, faculties, and institutions.

Our presentation has two key learning outcomes. First, audience members will better understand the connection between belonging, well-being, engagement and equity as we will provide an overview of the research in this area. Second, instructors will have the chance to learn about free, evidence-based resources that they can use to implement low-effort strategies in their own courses.

Takeaways:

- Research demonstrates that student engagement, belonging, and well-being are strongly connected.
- There are freely available, evidence-based resources online that instructors can use to implement low-effort strategies in their own courses (which we will share during the talk).

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402c: Revitalizing Staff Learning: Maximizing Engagement through Online Learning Communities

Chun Chih Chen, Organizational & Human Development, University of Waterloo

John Fedy, Organizational & Human Development, University of Waterloo

As a prominent leader in online pedagogy, the University of Waterloo takes pride in standing out when it comes to involving students in the digital learning environment. To embrace digital transformations and align the experience in our staff learning, the Organizational and Human Development team has developed and engaged our staff in online learning opportunities, aiming to invigorate their professional development journey.

With the increasing adoption of online platforms in post-secondary educational programs¹, it is crucial to harness the same technologies to enhance the learning and development experiences for the staff at the University of Waterloo. Therefore, we focus on tapping into the transformative potential of online communities to maximize engagement among university staff. Notably, in our online courses, we have observed a significant increase in staff participation and engagement comparable to our in-person and synchronous workshops.

In this presentation, we will explore strategies and practices for designing and implementing online modules by applying best practices in andragogy, online education, and universal design for learning principles in the context of staff learning and development. We will discuss multimedia elements, micro-learning, and collaborative tools within the online course environment^{2,3}. Finally, we discuss how OHD courses enable participants to engage in self-directed or collaborative learning to create a dynamic and immersive learning environment with personalized learning pathways and adaptive assessments.

Our ultimate goal is to familiarize our staff at the University of Waterloo with the same online learning expectations as our students and allow them to gain technological competencies through experimentation and social learning. Ultimately, we hope that our new online programs facilitate lifelong learning among our university staff, fostering a vibrant and engaged academic community within the University of Waterloo.

Takeaways:

- OHD online learning allows the University of Waterloo staff to engage in an online learning supported by best practices in online teaching and UDL.
- Online courses have high engagement and course completion rates that are comparable to in-person and synchronous workshop experiences.
- Online learning allows continuous course evaluation and refinements through qualitative and quantitative data collected throughout the courses.

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Session 403: Presentations

403a: Realistic Family Therapy Training (RFTT) for Psychology and Acting Students: An Experiential Partnership with Theatre and Mental Health *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Dillon Browne, Psychology, University of Waterloo

Andrew Houston, Communication Arts, University of Waterloo

Rebecca Zehr, Recreation & Leisure Studies, University of Waterloo

This presentation will highlight the outcomes from this multi-year long project that has continued to evolve with the many, and continued impacts of COVID-19.

Our aim is to spark and sustain engagement through experiential learning methods. Hands-on process of mock therapy sessions have proven to enhance learning in both graduate and undergraduate psychology courses.

The theatrical approach (specifically, improvisational theatre) empowers students by allowing them to conduct their own (supervised) sessions in a safe, comfortable platform; allowing them to practise, play and experiment while demonstrating learned theoretical concepts. We pair students with professional actors to act as patients to mitigate potential psychological risks. The psychology students are given the opportunity to practise thinking on their feet and active listening. These are essential skills in any patient-focused profession that are most easily absorbed through practise.

This project has directly enhanced student learning in the following ways: (a) undergraduate psychology students have learned how theoretical and scientific principles of psychology interface with a regulated health service and legally controlled act through direct exposure to realistic clinical encounters; (b) graduate students in clinical psychology will gain exposure to family therapy techniques before conducting this high-risk, intensive service with actual clients, permitting a more gradual and errorless training approach; (c) the cultural, racial, gender, and sexual diversity of psychology training environments will be enhanced, countering the historically White, heteronormative training materials (e.g., instructional videos).

Takeaways:

- We hope attendees will leave with a new perspective on both the importance and potentially new methods of student engagement and empowerment.
- By giving students the structured and supervised space to practise, play and ‘think on their feet’ in the face of patient care; we have instilled confidence in practise that cannot be taught through dissemination of purely theoretical principals. The ‘learn-by-doing’ approach is something we hope each viewer can see value in through our measured, presented outcomes of this continued project.
- We encourage instructors to seize the opportunity for this type of student empowerment and growth. Students will greatly benefit from the opportunity to be mindful of the present moment, and trust themselves and their ability to apply their knowledge of theoretical concepts in a practical way. It is our hope that this work is seen as a vehicle for student success, and that instructors are empowered to find a way to experiment with this type of student-engagement in their own classrooms.

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403b: Supporting Equitable Student Engagement: Challenging Start-Up Culture in the Classroom

Jennifer Ross, University of Toronto

Dan Guadagnolo, University of Toronto

Nicole Laliberté, University of Toronto

Fiona Rawle, University of Toronto

Over the past two decades, many researchers and practitioners have adopted discourses of resilience and productive failure. Studies promote the benefits of grit (Duckworth, 2007, 2016), resilience (Waxman et al., 2002; Brown, R., 2015; Cassidy, 2015; Fuller et al., 2016; Ayala & Manzano, 2018), growth mindsets (Dweck), and productive failure (Kapur, 2008; Kapur & Kinzer, 2009; Kapur, 2015) while institutional emails deliver opportunities to learn how to manage stress and be more resilient at home and in the workplace. However, these discourses of resilience, grit, and failure lack critical recognition of the role structural inequities play in making entrepreneurial engagement accessible, even invigorating to some and detrimental to others. Too often, pedagogical discourses and institutional campaigns encourage student to be “made of grit” and “enjoy the start-up culture” without building a concomitant system of structural supports necessary for promoting students’ physical and emotional wellbeing, in-depth skill building, and equitable labor practices for long-term success.

Composed by an interdisciplinary team of educators from the humanities, social, and natural sciences, this paper explores how the language of economic innovation has intersected with not only student engagement but inequity in higher education. We place prevailing arguments of student risk-taking and productive failure within the context of power, positionality, and neoliberal political economy to ask: How do current best practices and campaigns to grow student engagement through resilience/grit/failure discourses uphold existing structures of power both within and beyond educational institutions? Learning outcomes from this presentation include strategies for identifying and thinking mindfully about entrepreneurial student engagement with the ultimate goal of reformulating engagement around principals of justice and care.

Takeaways:

- Learning outcomes from this presentation include strategies for identifying and thinking mindfully about entrepreneurial student engagement with the ultimate goal of reformulating engagement around principals of justice and care.

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403c: “We’ve been expecting you”: Exploring UDL in Creating Accessibility and Engagement in Graduate Professional Education

Lincoln Smith, University of Toronto

Kara Dymond, University of Toronto

Kathy Broad, University of Toronto

This session will focus on the application of Universal Design for Learning (UDL) principles to create engaging and accessible graduate level courses in a professional program. The session will draw on insights and learnings from a self-study research project of two courses (one in-person and one online) in a professional teacher education program. The study aims to explore how faculty can proactively prepare for and expect the diverse array of students prior to meeting them, and collaborate with students on an ongoing basis to create learning experiences that are responsive to their interests and needs.

Drawing on instructor journaling, ongoing discussions, and reflections on student feedback, researchers will share early observations and findings from intentional use of Katz’ Three-Block Model of UDL in our approach to teaching and assessment. Katz’s (2012) framework considers instructional practice as well as social-emotional well-being and the systems and structures that build or obstruct accessibility and inclusion. This work is grounded in continued learning about UDL and disability studies in teacher education and higher education (Gilham 2016, Naraian 2021).

Throughout the session we will model and explicitly discuss the pedagogical decisions and approaches that have been meaningful to engagement and accessibility in our classrooms. This will include well-being check-ins; multimodal interactivity; opportunities for reflection; and thoughtful use of visuals, anecdotes, and examples to bring content to life.

Learning outcomes include:

- Specific practices for implementing UDL principles and their potential impact on learner’s engagement and their experience of course accessibility
- Approaches to assessment (e.g., ungrading, multiple submission formats) that can make work more interesting for both instructors and learners
- Communication channels that facilitate collaboration with learners
- Activities that nurture learners’ sense of belonging and support well-being

Takeaways:

- Designing for learner variability has positive impacts that ripple beyond particular tasks and/or expectations.
- Intentional and integrated support for learner’s socio-emotional development and well-being has positive impacts on learning in graduate level courses.
- Learners challenge themselves (e.g., more difficult tasks, completion of readings, depth of reflection) when the focus of the course is well-being and access for everyone, rather than grades.

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Session 404: Presentations

404a: First Rule of Engagement - Communication ... Start the Conversation!

Heidi Engelhardt, Biology, University of Waterloo

One-on-one interactions are a valued part of the university experience and both student and instructor well-being. But ... how do we start conversations with students who will not raise their hand, wait in line to chat after class, email us, come to our office? Even if students were willing to take those steps, how could we manage this in large classes? Central communications may go out to students at risk, but what about the rest of them?

Within Brightspace, Intelligent Agent tool can be used to send customized messages that appear to come from you, based on criteria set by you. Messaging/binning can be done based on a combination of formative and summative activities. The number of messages (bins) is limited only by your imagination and energy. In addition to course outcomes, messages can include acknowledgment of factors outside the classroom impacting their lives and their learning.

I will describe an application of the Intelligent Agent tool used pre, intra- and post-pandemic in a 1A course of over 1,000 students. This outreach is part of a metacognitive/reflective exercise - predicting their grade on a midterm is linked to an exam wrapper survey, followed by sharing of aggregate results in class and discussion about study strategies. But the email outreach can run on its own. These messages will spark conversations with the top end students (also stressed!), the solid students with high 70s (distracted with not getting the 90s of high school), and the struggling students. For the latter group, tailored messages are another opportunity to provide information about supports within and outside your course, and even begin the conversation of what it means to WD a course.

Beware – if you send out these emails ... you will get replies ... that is how the conversations start!

Takeaways:

- Intelligent Agent in Brightspace provides a way to send customized messages to students in very large courses, based on their activity/standing in your course. The criteria for creating these messages/bins are up to you - participation in formative activities? outcomes on assessments? a combination?
- Even the students who are doing well appreciate having their efforts acknowledged by their instructor via these conversation-starting messages. University can be stressful whether you are struggling, barely coping or excelling.

404b: Ensuring Science Meets Experience: Barriers to CEL Implementation in STEM

Oren Princz-Lebel, Western University

Anastasios Catanzaro, Western University

Hana Abdelmeguid, Western University

Sarah McLean, Western University

How can we more effectively engage students and communities to be active participants in academia? Community-engaged learning (CEL), is a subtype of experiential learning characterized by institutions bringing learning into the community for the benefit of both students and community members.[1] While CEL has many notable benefits for students, it also has many benefits for the faculty members who utilize this pedagogy. These include greater levels of student appreciation, teacher satisfaction, engagement, and improvements in teaching ability.[2],[3] However, in regards to Science, Technology, Engineering and Mathematics (STEM) education, the implementation of CEL is still lacking. Our study aimed to investigate the barriers STEM faculty face when deciding to implement CEL pedagogy, taking perspectives from both 25 Non-CEL and 12 CEL faculty members at Western University. This study used a mixed methods approach using a survey distributed to faculty in STEM disciplines at Western University. The survey included both quantitative (Likert Scale) and qualitative (short-answer) data. Key barriers identified from our data include sufficient resourcing, relevance of CEL to STEM, and faculty teaching strategy. By the end of this session, participants should be able to describe the barriers affecting CEL implementation in STEM fields, establish groundwork for implementation practices and begin an open dialogue regarding this dilemma. CEL provides a novel and effective way to increase student engagement and skill in STEM disciplines. The identification of the barriers noted here serves as an important first step toward changing policies and curricula so both students and faculty can benefit from this enriching, valuable experience.

Takeaways:

- Key barriers to CEL implementation in STEM disciplines include resource allocation, changes in teaching strategy and relevance to STEM principles.
- The identification of these barriers is an important first step in establishing change and CEL implementation in STEM curricula.

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404c: Use of Gamification Elements to Increase Student Engagement in a First Year Science Course

Felicia Pantazi, Centre for Work-Integrated Learning, University of Waterloo

Keith Delaney, Earth Sciences, University of Waterloo

For a first-year Science course we used two types of gamification elements to increase student engagement: a scavenger hunt activity (engagement with content) and completion badges (engagement with bonus assessments).

One of the most common complaints we hear from instructors is the lack of syllabus reading by many of the first-year students. There are lots of articles that describe this phenomenon (Berdahl, 2021; CBC, 2021), as well as memes (Meme It's in the Syllabus - Google Search, n.d.), but most importantly the literature also describes various methods that could be used by instructors to increase students' engagement with the syllabus (Schaller, 2020; Stirling et al., 2016). Also, there are many examples that support and use scavenger hunts in higher education settings, and one of them is the Research Matters Virtual Scavenger Hunt, hosted by the Council of Ontario Universities, where 21 publicly funded Ontario Universities participated (Council of Ontario Universities, n.d.).

In our first-year fully online course, we adopted a scavenger hunt activity that engages students into searching for selected information in the syllabus and sharing their findings as well as a short introduction with their peers in a discussion board. Feedback collected on this activity was very positive (response rate 86.3%, N=227)

In addition to the scavenger hunt, another method of engaging students was also implemented, this time utilising the various course assessments, including completion badges. Research shows that use of badges can impact learning positively, but more research is needed (Roy & Clark, 2018). We decided to explore this option in this first-year course, and we will present the results collected through student feedback regarding the motivation of taking the bonus assessments (i.e., badges, bonus marks, practice, other).

Takeaways:

- Explain the importance of using a scavenger hunt activity to inform students about important syllabus items.
- Discuss the impact that completion badges have on student engagement.

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Session 405: Presentations

405a: Increasing Student Engagement: Implementing Specifications Grading to Foster Intrinsic Motivation, Encourage Students to Excel, and Enhance Clarity in the Classroom

Maryam Sheikh, McMaster University

Kerry O'Neill, McMaster University

Specifications grading is an innovative approach to improving student learning. It seeks to increase the clarity of learning outcomes for both students and instructors, alleviate anxiety, provide students with opportunities to communicate their learning in a variety of ways, and establish positive working relationships between students and instructors. This is made possible through the development of assignment bundles; students have the ability to choose which grade they are pursuing and complete the corresponding learning activities. Students can address learning concerns and implement constructive feedback through resubmission opportunities. One of the aims of specifications grading is to create inclusive learning environments where students of all learning styles are respected, engaged, and supported.

The objective of this presentation is to share how this innovative grading approach has the potential to increase student engagement, foster intrinsic motivation to learn, ensure that students are co-creators of their learning experiences, and establish high standards that encourage all students to aim high and excel. Through sharing research findings and student experiences with specifications grading philosophy seminars and student-developed resources, this discussion will highlight the potential of specifications grading across various disciplines.

Specifically, the presentation will focus on addressing the potential challenges with implementing this type of grading, how faculty members can be encouraged to adopt specifications grading, how curriculum creation can center student voices, needs, and concerns, how a balance can be struck between the quality and quantity of material expected, and what resources may aid instructors and students in learning more about this form of grading. Moreover, participants will discuss how students can be encouraged to explore non-traditional learning environments in order to foster confidence in their abilities as well as critical thinking and adaptability skills.

Takeaways:

- The specifications grading format can encourage students to aim high because it establishes clear success criteria, caters to different learning styles, and offers flexibility.
- It may be challenging for students to adapt to a new grading format; as such, open communication with students should be fostered to actively respond to concerns and enhance course delivery.
- Employing specifications grading can encourage students to challenge themselves, support student excellence, and broaden students' skill sets.
- A shift towards innovative teaching and learning practices requires the support, input, and collaboration of students and faculty members.

References:

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405b: Anatomy of a Classroom Tech Ethics Experiment

Marcel O’Gorman, English Language & Literature, University of Waterloo

Heather A. Love, English Language & Literature, University of Waterloo

Megan Selinger, English Language & Literature, University of Waterloo

In 2018, Kate Crawford and Vladan Joler created an exploded diagram detailing the birth to death of the Amazon Echo (a popular household personal assistant technology), alongside a 21-part essay outlining the social, environmental, and ethical concerns tied to the manufacturing, encoding, use, and disposal of this device. This work – part art installation, part manifesto – was the guiding factor behind the major assignments assigned to students in several recent sections of “ENGL 192: Communication in the Engineering Profession.” This presentation focuses on this project’s potential for engaging students in issues related to technology, ethics, and communication. We will first provide some background information on the genesis of working with the “Anatomy of an AI System” project, and then move into a discussion of how the project has promoted student engagement with issues ranging from responsible innovation to visual design, and from data colonialism to Indigenous AI.

Takeaways:

- Providing student with opportunities to collaborate in creative and critical ways can enhance their willingness to think analytically about complex topics such as the ethical dimensions and environmental impacts of socio-technical systems.
- A multi-part iterative assignment sequence designed around topics that are likely to appeal to students’ existing interests can engage them in broader discussions about their moral and ethical responsibilities with respect to technology, while ensuring that they feel empowered rather than discouraged about the state of the world and their future roles within it.
- This project aimed to have students grapple with the idea that communicating the complexity of a problem is part of the path forward to ensuring more equitable and environmentally conscious technologies in the future.

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Session 406: Panel Discussion - Co-Designing, Co-Teaching, and Co-Learning with Graduate Students: Making Interdisciplinary Teaching of Wicked Problems Work

Adebusola Adekoya, School of Public Health Sciences, University of Waterloo

Kevin Bonnell, School of Planning, University of Waterloo

Serena McDiarmid, Centre for Teaching Excellence, University of Waterloo

Shahan Salim, School of Public Health Sciences, University of Waterloo

Kyle Scholz, Teaching Innovation Incubator, University of Waterloo

This time last year, the Teaching Innovation Incubator's inaugural interdisciplinary Wicked Problems course, focusing on climate change, was being co-taught by a team of six PhD candidates after a semester of co-designing the course. Part of larger project aimed to catalyze graduate student research and disciplinary expertise while also offering a meaningful teaching experience, this project culminated with an interdisciplinary co-taught and co-designed course that fosters learning and an integration of knowledge, methods, and ways of knowing that could not be achieved within a single disciplinary approach.

Numerous elements of this course, its design, and its delivery, are conceptualized with engagement at their foundation. From the course design process, where graduate student instructors are fully invested in shaping the structure of the course, to the flipped classroom model they are implementing to maximize student engagement in the course itself, to the end-of-year symposium to engage the broader public in the capstone course projects the students will be developing. The project itself prioritizes a more active and engaging form of professional development for the graduate students, one which will continue to evolve to benefit more graduate students at UW.

Its second iteration, focusing on the wicked problem of precarity, is now in the process of being redesigned by a new group of PhD candidates. Two of the previous instructors from the first offering have now assumed a trainer role, lending their developed pedagogical expertise to the new team of instructors to aid in thoughtfully redesigning this course.

This panel will centre the voices of the graduate students involved in this project – instructors and trainers alike – as they share their perspectives on how they have designed, and participated in, engaging pedagogical and facilitation practices. Lessons learnt will be applicable to anyone interested in co-teaching, interdisciplinary teaching, or designing a flipped classroom.

Takeaways:

- Inviting graduate students back into the course design process as trainers rather than learners can serve as a powerful form of professional development, while also helping create sustainable graduate student teacher training opportunities.
- The Wicked Problem project as part of the Teaching Innovation Incubator continues to evolve and seek opportunities to improve both the course it designs and the training opportunity for the graduate students.
- Interdisciplinary, flipped courses such as this provide meaningful and engaging opportunities for undergraduate and graduate students alike.

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Session 407: Alternative Session - Meaningful Collaboration for Indigenous Knowledges Inclusion in Course Content

Savannah Sloat, Faculty of Science, University of Waterloo

Jane Chomyc, Centre for Extended Learning, University of Waterloo

George Lamont, English Language & Literature, University of Waterloo

In this session we will share our experience of creating an Indigenous knowledges module for the first year Science Communications course, a collaborative effort across several stakeholders within the institution. We'll share the story of our process and practice, guiding educators on fostering respectful engagement between settler and Indigenous staff to work toward meaningful inclusion of Indigenous course content. In sharing our experience of the challenges and opportunities of this project, we hope participants will gain insights for engaging with this work in a culturally respectful and appropriate way, learn effective strategies to navigate and build meaningful partnerships, and understand how Indigenous knowledges can be approached with respect and reciprocity. The preference is for this session to be held in person to accommodate this.

Takeaways:

- **Collaborative Curriculum Development:** The session highlights the successful creation of an Indigenous knowledges module within a Science Communications course, how to effectively engage in collaborative curriculum development initiatives in meaningful and cultural appropriate ways.
- **Guidance on Respectful Engagement:** The session offers practical strategies for educators to navigate the dynamics of collaboration, ensuring a respectful and reciprocal approach to working with Indigenous knowledges.
- **Cultural Sensitivity and Effective Partnerships:** By sharing the challenges and opportunities faced during the project, participants will gain valuable insights into approaching Indigenous knowledges with cultural sensitivity.

References:

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Session 408: Workshop - A Novel Resource for Problem-Solving and Peer Evaluation

Laura Ingram, Chemistry, University of Waterloo

Robert Hill, Physics and Astronomy, University of Waterloo

Have you ever considered engaging students with in-class opportunities for problem-solving? Critical thinking? Peer Evaluation? The idea of incorporating these activities can be daunting for many instructors. Effective and engaging learning approaches often combine problem-solving opportunities with immediate and personalized feedback. For many courses, these activities present logistical challenges, and instructors alone cannot provide personalized feedback to all students.

To address these challenges, we have collaborated with Science Computing to create a novel worksheet that facilitates problem-solving and peer-evaluating activities. For students, there is no additional EdTech for them to learn; this is a “back-to-basics approach that engages learners through pen-to-paper work. For the instructor, the process uses the University of Waterloo’s Markbox platform to minimize workload and logistical barriers by efficiently automating grade collection and feedback distribution.

This worksheet allows us to provide opportunities for increased student engagement, collaboration and student-to-student interactions that are otherwise difficult to facilitate. The simple design of the worksheet allows it to be used for a variety of learning activities, and it can easily be adapted for use in any course, large or small.

In this workshop, we will show examples of how the resource enhanced our courses and discuss potential uses. In the first part of the workshop, participants will be able to “engage like a student”, using the worksheet to complete a peer-reviewed problem, similar to what could be done during class. In the second part of the workshop, we will explore the worksheet from the instructor’s perspective. Participants will access the Markbox platform and will be guided through the steps of worksheet setup, processing, and grading. The workshop will conclude with a discussion of potential uses and impacts on student engagement and learning.

Takeaways:

- We have created a novel worksheet resource to engage students with in-class problem-solving and peer-evaluation activities.
- The resource helps student learning, engagement, and well-being by providing new learning and assessment opportunities, peer-to-peer engagement and immediate and personalized feedback. The resource also helps instructors minimize time investment and workload when planning, developing and managing in-class active learning and peer-assessment initiatives.
- The worksheet design allows for use in a variety of learning activities in any class, big or small, and can be used by all instructors at the University of Waterloo.

References:

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Poster Session (500): Thursday, May 02 (5:20pm-6:20pm ET)

Poster Presentations

501: Capitalizing on Curriculum to Promote Post-Secondary Student Wellness: Preliminary Results from a Study of For-Credit Mindfulness Courses in Two Canadian Universities *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Allison Kelly, Psychology, University of Waterloo

Seonaigh MacPherson, University of the Fraser Valley

Giselle Kraus, Psychology, University of Waterloo

The recent National College Health Assessment survey (N=11,322) found 85% of Canadian postsecondary students experienced moderate to severe psychological distress (ACHA/NCHA, 2022). The top five impediments to academic performance were procrastination (61%), stress (51.5%), anxiety (43.3%), sleep (31.9%), and depression (30.4%). Research, including meta-analyses of randomized controlled trials, offers strong evidence of the efficacy of mindfulness in addressing these challenges (Halladay et al., 2019). Yet to date, the dominant approach to the teaching and learning of mindfulness in higher education has been in non-formal contexts like student health or support services, which research suggests have high attrition and low compliance or adherence rates (see MacPherson & Rockman, 2023). With these needs in mind, this study investigates the introduction of two evidence-based mindfulness programs – Mindfulness-Based Stress Reduction and Mindfulness-Based Cognitive Therapy – as discrete, for-credit upper-level courses at two Canadian universities (Waterloo and Fraser Valley), each offered in 12 weeks during the Winter 2024 term (N=25-30 students/course).

Research Questions

- What are the impacts of the course on students' stress and wellness; mindfulness; and academic performance?
- What are students' experiences of institutional supports for wellness and of the supports offered through the mindfulness course?
- What do students learn in such discrete mindfulness courses?

Methodology

Pre-, mid- and post-semester, students participating in the course and a control group of students not enrolled in the course will complete questionnaires assessing depression and anxiety, wellbeing, mindfulness, resilience, self-care, and academic engagement. We will also collect records of student attendance and adherence and final reflections on what they learned.

Principal Outcomes

Findings will highlight the varying benefits that can ensue from teaching mindfulness and perhaps other wellness-enhancing strategies within traditional academic curricula. This study may inspire new methods through which educators can promote postsecondary student mental health through their courses.

Takeaways:

- Given that mental health challenges are the top impediment to academic performance in higher education, there is a strong basis for offering for-credit courses aimed at promoting student wellness.
- For-credit experiential courses that center around empirically supported mindfulness programs, such as mindfulness-based stress reduction and mindfulness-based cognitive therapy, may attract and retain more students than extracurricular programs and help to promote student mental health, engagement, and academic success.

References:

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502: An Adapted Model of the Student-Led Individually Created Course (SLICC) Model Helps to Sustain Student Engagement *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Jennifer Yessis, School of Public Health Sciences, University of Waterloo

Nada El-Abbar, School of Public Health Sciences, University of Waterloo

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

Narveen Jandu, School of Public Health Sciences, University of Waterloo

This poster will share the findings from our LITE grant project focused on assessing the application of the Student Led Individually Created Courses (SLICC) Model in the MPH capstone course using PebblePad. Students completed a Capstone Project as part of a group for a public health client. Every group documented their project using an e-portfolio and every individual student completed a digital workbook to show their contribution to the group project. It was revealed that requiring all individuals within each group to demonstrate accountability for their contributions served to sustain engagement in the project until the end of the course. The adapted SLICC framework emphasized reflective learning, formative assessment and peer feedback which enabled learning to occur throughout the term.

The process of completing peer review and self-reflection gave control to the students and empowered them as partners in the learning process. The expectation of documenting individual contributions to group work enhanced individual engagement in the course, as it instilled a sense of accountability for group efforts (Fung, 2022). Moreover, individual reflections made students think about their own learning experiences and how they developed as they went through the experiences (Shaw, 2018). Through peer- evaluation and the reflection process of the adapted SLICC in this capstone course, students interpreted their own experiences and actions in their academic environment. This accountability played a role in ensuring that individuals played an integral role in their group project (Korhonen et al., 2019). When students are engaged in their learning it has been linked to improved learning experiences and a higher level of thinking (Korhonen et al., 2019).

Takeaways:

- The SLICC model promotes students as partners in the learning process by empowering them to personalize their learning outcomes.
- The SLICC model can be used to demonstrate individual accountability in group projects and enhance engagement.

References:

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503: Instructional Resource Requirements for Accessible Lectures *

*This is a University of Waterloo [Learning Innovation and Teaching Enhancement \(LITE\) Grant](#)-funded project

Jennifer Ellingham, Mechanical and Mechatronics Engineering, University of Waterloo

Jane Russwurm, Writing and Communication Centre, University of Waterloo

Carol Hulls, Mechanical and Mechatronics Engineering, University of Waterloo

“Increased capacity at Canadian universities to integrate equity, diversity and inclusion in their teaching, research and governance” is required by Universities Canada’s federal action plan [1]. Additionally, Ontario universities are required to implement the incoming Accessibility for Ontarians with Disabilities Act (AODA) Post-Secondary Education Standards by January 1, 2025 [2]. Extensive literature exists on ways to improve inclusivity, diversity, equity, and accessibility (IDEA). For lectures, recommendations include microphone usage [3], [4], recordings [4], closed captions [5], and sharing contextual inclusivity information [4], [6]. However, the impact and instructional resource requirements for these improvements are not documented, making it difficult for instructors (and institutions) to prioritize changes.

A study is in progress that is investigating practical (high impact, relatively low resource requirement) ways to make university classrooms more inclusive and accessible. Over four years, changes have been made to an engineering math course, targeted at enhancing inclusivity and accessibility. Regular, general and specific feedback was collected from students in five iterations of the course. Course instructor(s) will be interviewed to obtain their feedback. Through mixed-methods data analysis, quantitative and qualitative comparison of the impact of various changes made to promote inclusivity and accessibility of the course will be assessed. This presentation will focus on the impact and resources required for IDEA changes to lectures (including all the above recommendations and several others). In particular, the presentation will highlight high impact changes to lecture delivery which required relatively few resources. Attendees will also become familiar with impactful improvements requiring more resources that it may make sense to introduce in stages or with additional institutional support.

Takeaways:

- Recommended IDEA practices for lectures have varying impacts and require different amounts of resources to implement.
- Several IDEA changes can be made in lectures that have a significant impact on student experience but require relatively low instructional resources.

References:

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504: Engaging Instructors in Accessibility Through a Post-Secondary Course Accessibility Guide

Christine Zaza, Human Resources, University of Waterloo

Equitable engagement involves removing barriers and biases and improving access for all learners. For many postsecondary students with disabilities, barriers impact engagement as well as the ability to complete their degree (Carroll, et al., 2020; Chatoor, 2021).

To address inequities related to accessibility, in 2022 the Ontario government released a final report consisting of 185 proposed Postsecondary Education Standards (PES) recommendations under the Accessibility for Ontarians with Disabilities Act (AODA). This report serves as a call to action for postsecondary schools to remove barriers experienced by disabled learners. While many of the report's 185 recommendations are directed at the government and postsecondary senior leaders, 21 recommendations are directly applicable at the course level.

This poster describes a new accessibility resource that integrates the course-level accessibility requirements and PES recommendations. The Postsecondary Course Accessibility Guide goes beyond a simple checklist; each accessibility criteria includes a rationale, examples of the criteria's impact on disabled students, instructions on how to meet the criteria, and source of the criteria. Instructors and instructional support specialists can use the Guide's fillable Form to identify how a course already meets accessibility requirements, where accessibility gaps can be addressed, and where institutional support or change is needed.

With funding from eCampus Ontario, peer reviews and user experience testing were conducted on drafts of the Guide. The final version will be translated into French and become available as an openly licensed resource in March, 2024. Next steps involve using this resource to identify which accessibility practices instructors need more institutional support to implement and which practices have a greater impact on students with and without disabilities.

Learning Outcomes: By the end of this poster session participants will be able to describe a new resource designed to support instructors and instructional support specialists as they apply accessibility requirements and recommendations to their courses.

Takeaways:

- Equitable engagement involves removing barriers and increasing access for all learners.
- The Postsecondary Course Accessibility Guide is an openly licensed, adaptable resource that integrates the course-level accessibility requirements and recommendations.

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505: The Centre for Extended Learning (CEL) – Agile Development Team – Provides Support for Instructors Who Want to Create Engaging Digital Learning Experiences for Students

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Anna Barichello, Centre for Extended Learning, University of Waterloo

Daniel Opperwall, Centre for Extended Learning, University of Waterloo

Rachael Verbruggen, Centre for Extended Learning, University of Waterloo

Tanya Strong, Centre for Extended Learning, University of Waterloo

Jana Roberts, Centre for Extended Learning, University of Waterloo

David Skoryk, Centre for Extended Learning, University of Waterloo

The Agile Development Team's digital poster will showcase examples of leveraging digital technology to engage in-class and online students. Examples will include:

- Jola Gurska's BIOL 130 LAB - 360 video lab overview
- Mingqian (John) Zhang's ChE 490 LAB - animated videos demonstrating complex concepts
- Craig Fortier's SDS 331R - metacognitive strategy/reflective prompts
- Zara Rafferty's REC 100 - formative assessments/interactives

Research shows that student engagement increases satisfaction, motivation, and improves performance (Martin & Bollinger, 2018; Tang, et al., 2023). Specifically, literature supports formative assessment for active engagement, enhanced learning, targeted feedback, and metacognitive development (Humora & Iroda, 2023). Additionally, in both online and in-class environments, students report greater learning gains and engagement in courses with instructor-made videos (Lupinski & Kaufman, 2023; Rose, 2009). Finally, the inclusion of online activities using interactive media increases affective, cognitive, and behavioural engagement stimulating deep learning (Sugden et al., 2021).

Takeaways:

- Examine examples of digital engagement strategies where the Centre for Extended Learning's Agile Development Team has provided development support.
- Explain how evidence-based digital learning strategies and User Experience Design for Learning (UXDL) can enhance student engagement and improve student performance.

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506: Students' Engagement with Learning Skills Support Within and Beyond the Classroom Context: What the Fall 2023 Data Tell Us

Jenna Hampshire, Student Success Office, University of Waterloo

Jennifer Ferguson, Student Success Office, University of Waterloo

Kayla Snyder, Student Success Office, University of Waterloo

Min Huang, Student Success Office, University of Waterloo

The Student Success Office (SSO) supports student learning through a range of initiatives and interventions, both in and outside the classroom context. Classroom-based interventions are achieved through our collaborations with course instructors who aim to embed learning skills content into their course curriculum. Co-curricular programming and interventions are delivered directly to students through 1:1 peer coaching appointments, workshops, online learning modules and web-based instructional resources. Both kinds of programming are important. Both aim to develop stronger metacognitive skills, which we know result in improved learning. But what is our reach and level of engagement? What content are students accessing on their own, what support are they looking for most, and what can instructors do to better meet their learning needs?

This poster presentation will share what the data tell us about students' engagement with learning skills content within and beyond the classroom, based on the data we collected from student feedback, booking forms, enrollment, website analytics and uptake of course-embedded supports over the Fall 2023 term.

Although these data were collected and analyzed for the purposes of internal programming assessment and improvement, the findings from this project should be of interest to all instructors of undergraduate students. Participants will gain insight into the learning skills supports students are seeking on their own, what strategies and tools are best embedded in the classroom, and what SSO resources are available to students and course instructors.

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507: Fostering Curiosity and Practical Skills Through Experiential Learning in Statistics Courses: Lessons Learned and Strategies for Success

Nathalie Moon, University of Toronto

This poster presentation explores the transformative impact of experiential learning in statistics courses, shedding light on its efficacy in sparking students' curiosity and engagement with course material. Engaging with authentic data problems not only deepens students' understanding of theoretical concepts but also equips them to grapple with the complexities that often arise in real-world practice—complications frequently overlooked in traditional classroom settings.

Over the past six years, I have included project-based experiential learning opportunities in statistics classes at the first year and fourth year levels, ranging in size from 20 to 600 students. I have collaborated with partners from various disciplines to present real data problems to my students, and these learning experiences have been overwhelmingly well received by students. In this session, I will discuss the benefits of project-based learning and address the challenges inherent in running such projects and share lessons learned from navigating logistical complexities, managing diverse student teams, and ensuring meaningful collaboration with external partners.

My objective is to share useful insights and practical tips to enhance the implementation of project-based experiential learning initiatives across disciplines. I will discuss strategies for navigating NDAs and data sharing, managing expectations with external partners, and training teaching assistants to effectively support students. In this session, attendees will gain a deeper understanding of the benefits of real-world projects, along with strategies for overcoming challenges, enabling them to create a more enriching and smooth experiential learning experience for their students.

Takeaways:

- Experiential learning fosters increased student curiosity and engagement.
- Collaborating with external partners is rewarding and beneficial for students but requires good communication and management of expectations.
- It's important to train teaching assistants to equip them with the information and skills they need to effectively support students.

508: Engineering Intuition: Defining and Incorporating Intuitive Problem-Solving in Fluid Mechanics Education

Mikaela Lewis, Mechanical and Mechatronics Engineering, University of Waterloo

Practicing engineers often refer to “engineering intuition” playing a role in their decision-making and problem-solving skills on the job, but how is this qualitative skill defined? And how can we encourage the development of engineering intuition in our students? Discipline-specific intuition is used as a buzzword in several professional practices including nursing, business management, and engineering. The pedagogical literature on discipline-specific intuition attempts to find a definition, and most agree that it is related to experience, but also to confidence and creativity. Intuition is employed when making fast and accurate decisions under pressure or external constraints. As educators, it is our job to prepare our students for the world after academia, which means training intuitive problem-solving during university.

Engaging students on a level that provides the freedom to explore alternative perspectives when solving open-ended problems leads to an improved grasp of intuitive problem-solving. It is also shown that when students gain the skills required for intuitive problem-solving, they have a higher satisfaction with the course content and outcomes. It is crucial that instructors transform their teaching methods to align with the dynamic nature of the engineering practice. Engineering intuition, often an overlooked aspect in education, plays a pivotal role in cultivating a mindset adaptable to the complexities of society outside of academia. This author proposes a multifaceted approach to incorporating engineering intuition training into fluid mechanics courses based on a combination of literature research and experience. This approach includes a combination of teaching team rapport with students, open-ended problem-solving, simulation technology, and metacognitive thinking to promote the skill development required to increase interest, and engagement, and ultimately start to build engineering intuition in our students.

Takeaways:

- Defining discipline-specific intuition: Practitioners in disciplines that involve a human-centered high-stakes approach often refer to some form of “intuition” or “gut-feeling” when making decisions under pressure or external constraints. Defining this discipline-specific intuition and how to train it is not an easy task, and many researchers have attempted to quantify it. However, by studying the similarities between different disciplines where “intuition” plays a role (such as nursing, business management, and engineering) we can come to a loose definition that includes an aspect of experience, confidence, and creativity that allows engineers to use intuitive problem-solving to make efficient and effective decisions under pressure.
- Leveraging teaching methodologies to integrate engineering intuition into fluid mechanics education: Pedagogical literature emphasizes the importance of integrating “engineering intuition” into engineering education as a key element for developing students’ problem-solving skills. Specific to fluid mechanics education, and drawing on the author’s experience and a student and TA, a multi-faceted approach is outlined that will encourage students’ development of engineering intuition. This approach includes student-centered methodologies that are designed to increase student engagement, and promote lifelong learning. The proposed multifaceted approach includes open-ended design questions, group work, simulation software, and incorporating metacognitive thinking. Additionally, the author proposes the importance of the teaching team building a rapport with students that includes admitting and displaying their own mistakes to teach students how to handle failure in an effective and productive manner.

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509: Exploring New Educational Frontiers: Enhancing Student Learning in University Classrooms Through Artificial Intelligence

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Background: ChatGPT is becoming increasingly more commonplace in educational settings (Alshahrani, 2023). Due to recent advancements, ChatGPT is able to decipher not just the intent, but the context and tone of the user input, allowing for personalized responses (Ilieva et al., 2023). It is able to store and recall prior conversations using logged user data, allowing for patterns of use and preferences to be identified, further personalizing the interaction (Ilieva et al., 2023). In fact, research shows that up to 20% of students use AI programs like ChatGPT to complete assessments (Sullivan et al., 2023). These numbers are predicted to increase as more students adopt the technology (Sullivan et al., 2023). Nonetheless, there is presently no consensus on the best approach to take towards implementing ChatGPT in an education setting (Bowles & Kruger, 2023).

Methods: A literature review was conducted aiming to answer the following research question: How can ChatGPT, a commonly used AI, be leveraged to improve student learning outcomes in university classrooms and what are some key considerations of its use?

Results: The use of ChatGPT confers many benefits to both students and instructors alike. ChatGPT can be used throughout the assessment process and is able to offer asynchronous communication and support, and can be particularly helpful for students for whom English is a second language (Alshahrani, 2023; Bowles & Kruger, 2023; Cotton et al., 2023; Foroughi et al., 2023; Limo, 2023). Similarly, instructors can use ChatGPT throughout the course delivery cycle including for lesson planning and resource development (Alshahrani, 2023; Bowles & Kruger, 2023; Cotton et al., 2023; Eager & Brunton, 2023). However, the adoption of ChatGPT in university also poses several challenges, including academic integrity concerns, equity-concerns around paid subscriptions, and concerns around accuracy of output (Bowles & Kruger, 2023; Cotton et al., 2023; Foroughi et al., 2023; Sullivan et al., 2023).

Takeaways:

Industry leaders and academics alike forecast a rise in the integration of AI into the workplace. Additionally, ChatGPT has been shown to improve student engagement, interest in learning, and motivation. However, due to challenges in integration, focus should be placed on ethical use and fostering critical thinking skills such as through engaging with challenging material/texts and having classroom discussion.

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510: Engaging with Sustainability in Curriculum: Framework and Toolkit

Abigail Loewen, Sustainability Office, University of Waterloo

Mathew Thijssen, Sustainability Office, University of Waterloo

As global sustainability impacts and transitions unfold, graduates will need core skills and discipline specific knowledge of climate change and sustainability if they are to be global citizens prepared to thrive in an age of rapid change^{1,2}. Sustainability is an interdisciplinary topic with emerging concerns that will affect all graduates. As a result, many disciplines are adapting sustainability knowledge, skills, and values into their programs in order to address future industry needs. The Sustainability Office, with the Teaching Innovation Incubator, have led the Integrating Sustainability into Undergraduate Programs of Study project to consider how curriculum offerings could be created and/or adapted to allow all students to develop foundational and discipline-specific understanding of sustainability. This is a highly collaborative, interdisciplinary project, supported by and engaging with students, instructors, departmental chairs, program directors, staff, and other faculty.

To better understand how students view engagement with sustainability and its relevance to their lives and careers, a survey of 386 randomly selected undergraduate students was conducted. 92% responded that they believe sustainability will affect their career to some extent in the short term and over 75% indicated that they would be interested in learning about sustainability. Students were most interested in seeing sustainability integrated into existing content, rather than separate content, particularly as their schedules are already full and they lack capacity to engage in new.

Understanding the relevance of sustainability for undergraduate learners and needing to find ways to bring sustainability to them, a flexible framework was developed through which sustainability can be integrated into any program of study, as relevant. Additionally, the development and collection of resources to support this work formed a toolkit, including a collection of sustainability definitions to support departmental conversations, references to industry associations to form connections, information on approaches to integrate sustainability from modules to courses to program outcomes, and case study examples of departments at the University of Waterloo that have integrated sustainability into curriculum. This poster presentation will highlight these outcomes from the project, providing staff and faculty with information on the framework, connections to available supports on campus, resources available in the toolkit, and anticipated projects in the second year of this project two to connect with.

Takeaways:

- Understand how Sustainability integration in curriculum is beneficial for students and faculty, as it engages students with content in a unique way, deepens their understanding of the discipline, and prepares them for needs of the future.
- Increase familiarity with resources and supports available for the work of integrating sustainability in curriculum.

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511: Another Tool in the Toolbox: Modulating Student Motivation via Community Engaged Learning

Anastasios Catanzaro, Western University

Sarah McLean, Western University

How can we nurture a more diverse array of motivational strategies among students in STEM disciplines? Community engaged learning (CEL) is a teaching pedagogy characterized by academic institutions bringing learning into the community, for the benefit of both students and community members. Current literature suggests that CEL has a potent ability to increase civic engagement and beneficence in both students and community members, modulate empathy, enable students to use more metacognitive strategies, and translate their academic ability into applicable skills. However, anecdotes also suggest that students are primarily motivated extrinsically- for example, by grades and performance- especially in the sciences. Given that these disciplines often lead to service careers in science and healthcare, a dominance of extrinsic motivation may be disadvantageous to both the students and the eventual communities they serve. Our investigation aims to assess levels of extrinsic and intrinsic student motivation in a 4th year undergraduate CEL course and explore whether the unique course structure itself may serve to modulate motivational type. This study was conducted via a mixed methods design, using the Motivated Strategies for Learning Questionnaire (MSLQ) as the quantitative portion, and thematic analysis of student reflections and focus group responses as the qualitative arm. The results corroborate meaningful changes in student mindset and learning approach as they progress through the course. By the end of this session, participants should be able to delineate between extrinsic and intrinsic motivation and identify how CEL affects these parameters. This research can aid us in understanding how we can best serve our students, diversifying their available motivational strategies, so they can in turn better serve their communities and themselves.

Takeaways:

- Extrinsic and Intrinsic motivation engage in complex interplay and one is not morally superior to another. Rather they are both contextually useful.
- CEL proves a useful tool to modulate student mindset and learning approach, engaging students to grow as academics and people.

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512: The Planning & Design Studio Guide: A New Approach to Engaging Students in Technical Learning

Katherine Perrott, School of Planning, University of Waterloo

This presentation shares findings about student engagement with an interactive ebook which compiles step-by-step tutorials to help students develop skills needed in applied planning and urban design studio courses. The “Planning & Design Studio Guide” uses Pressbooks to bring greater interactivity into the material than is available in the LEARN platform. This also give students access to skills training material throughout their degree without losing content on a course-specific LEARN site. This Guide is helping to streamline expectations and recommended techniques from different instructors, which is intended to improve clarity in assessments for students.

The need for a Guide of this kind became apparent during consultation with students, and in talking with other instructors as part of the School of Planning’s recently completed undergraduate curriculum review. Students in design courses need to learn a wide range of visual representation types using graphic communication, 3D modelling, rendering, and drafting software. These technical skills are required alongside the university’s focus of teaching students to be analytical critical thinkers, practical problem solvers, and creative designers (Moudon, 2016; Pafka & Dovey, 2018; Roberts, 2016). Waterloo students have identified a gap in support for technical and software learning to help them complete their coursework and better prepare them for co-op terms and future professional work. The digital tools landscape is constantly changing (Lim et al. 2016), and we need a mechanism through which to share new innovations and guide student use of new tools (like visual AI bots).

This poster overviews the establishment the online toolkit then presents findings from a focus group that assessed student experience with the initial soft-launched resource that will inform the refinement of content and user experience.

Takeaways:

- The interactive “Planning & Design Studio Guide” uses the Pressbooks online format, enabling students to engage with software learning in a supported, yet self-directed manner. This both complements in-person tutorials and sustains learning in the long-term by providing a resource for students to reference beyond the initial course in which the skill was taught.
- Compiling tutorials from multiple courses into a single, accessible, free online resource sustains student engagement with learning throughout their degrees, during co-op work terms, and in the early stages of their career.

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513: An Investigation into Engineering Student Participation in Extra-Curricular Activities

Chris Rennick, Engineering IDEAs Clinic, University of Waterloo

Mary Robinson, Engineering, University of Waterloo

Sophie Nasato, Engineering Outreach, University of Waterloo

Samantha White, Engineering Outreach, University of Waterloo

The work of Willson-Ihejirika et al. (2023) has shown that participating in extra-curriculars can increase student interest in STEM careers, and can lead to higher graduation rates, especially with women students. The purpose of this work is to develop an understanding of these motivations and the barriers that Waterloo Engineering undergraduate students of varying backgrounds (with a focus on minority groups) in participating in hackathons and extracurricular activities.

In 2023, a team formed from the Engineering IDEAs Clinic and the Associate Dean Outreach, Equity and Diversity at UWaterloo to develop and run a survey that was sent to the entire undergraduate Engineering student body. The survey included a comprehensive set of demographics questions, adopted from the campus-wide equity survey, enabling comparisons of the study population to the broader student population. Questions about the student's participation in extra-curriculars, including questions about why they are participating, why they may have stopped participating, or why they have never participated were included. This study was performed under UWaterloo ORE #45461.

More than 700 responses were collected from the undergraduate student population in the fall of 2023. Statistical analysis of this data set is underway, focusing on identifying features of extra-curricular activities which promote a safe and inclusive environment for student participation. Join us to learn more about what attracts and supports students from underrepresented populations in Waterloo Engineering.

Takeaways:

- Who in the Waterloo Engineering undergraduate population participates in extra-curricular activities.
- Features of extra-curricular communities that attract and retain students from underrepresented populations.

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514: Facilitating In-Class Discussions and Fostering Meaningful Class Participation

Mojdeh Shahidi, Classical Studies, University of Waterloo

With a shift towards highlighting the importance of student engagement in the classroom in higher education settings, many university syllabi have adopted a robust “participation” element in learning processes embedded in the course design. Graded participation has thus become a standard practice in many humanities and social sciences classes. These practices aim to go beyond the attendance model and incorporate assessments ranging from taking part in class discussions, peer critique, and teaching demonstrations amongst others.

With this in mind, my proposed poster presentation aims to highlight effective ways to foster meaningful classroom participation for undergraduate students in upper year seminars. An attempt to diversify the formats of student participation based on both pedagogical practice and empirical research would therefore be explored in order to bring to light some strengths and weaknesses of relying on the traditional discussion formats used in the humanities. Considering some of the limitations of verbal participation in humanities classes such as student confidence and comfort levels in public speaking, barriers to feeling welcome and entitled to speak up based on language fluency, ethnicity, class, and gender identity, looking at ways that can encourage a wider range of participants can be significant. I wish to highlight methods for both active and passive student engagement (such as speaking up directly in response to a proposed discussion topic versus writing anonymized short responses in class), consider the advantages and disadvantages of more free-form discussions against skilful instructor-led round tables, and consider how these graded participation elements can be leveraged to serve a variety of diverse learning styles that can ultimately create a more compassionate and inclusive learning environment for all.

Learning Outcomes:

- Facilitating high-impact classroom participation,
- Incorporating diverse forms of active learning into graded class participation

Takeaways:

- How instructors can become more cognizant of the structural advantages and disadvantages of graded participation for smaller classes in the humanities.
- Methods for structuring class participation periods in order to meaningfully engage students with the content.
- Employing a diverse set of practices to help bridge the gaps inherent in students’ abilities when it comes to class discussions.

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515: Engaging Excellence: Nurturing Research Skills in the Co-operative Education Research Certificate

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While all students in co-operative education programs at the University of Waterloo graduate with a co-op designation, every co-op student's experience is different. Approved by Senate in 2018 and launched in 2019, co-op students who are employed in research-oriented co-op work terms may opt into the Co-operative Education Research Certificate (CERC). This official certificate program is listed under the University's Undergraduate Studies Academic Calendar and engages three key stakeholder groups: students, employers, and staff. Students engage with the program as learners in an online research-specific professional development course (PD13: Research in the Workplace), develop researcher skills with their co-op employer through research work terms, and participate in a capstone mock interview reflecting on their learning and demonstrating autonomy in the work of research.

CERC supports students across all academic programs and promotes engagement between students and university support staff, students and their employers, and students with one another through a range of online tools and workshops.

Learn more about the engagement practices including pedagogy and technology used by Co-operative and Experiential Education to facilitate this certificate program.

Session attendees will leave with:

- An understanding of the specialized co-op research certificate at the University of Waterloo
- An increased awareness of approaches to engage students through an online independent study

Takeaways:

- It is recommended that online learning tools including LEARN and PebblePad are directed to one audience to maintain program clarity and progression.
- Student confidence and program engagement is enhanced when asynchronous learning tools are paired with synchronous peer assessment workshops.

516: Using iClicker to Enhance Student's Engagement in a Classroom

Sura Ali, Biology, University of Waterloo

Active learning is actively engaging students in deep learning. One of these interactive learning techniques is the iClicker [1]. Using an iClicker system can be a great way to enhance engagement in the classroom, by allowing students to actively participate in real-time polls, quizzes, or discussions [2]. This interactive tool fosters student involvement, encourages immediate feedback, and helps instructors gauge understanding levels. It creates a Safe Environment, as some students may feel self-conscious about participating with iClickers, especially if they are afraid of giving the wrong answer. iClicker will help in attendance Tracking, polling, and Surveys. Instructors can gather feedback from students on various topics, allowing for quick and anonymous input from the entire class. Some instructors use iClickers to gamify the learning process. iClickers encourage peer discussion, it can provide an opportunity for students to explain their reasoning, consider different perspectives, and learn from each other. In addition, iClickers can be used for group Activities, instead of posing questions to the entire class, consider using iClickers for group activities [3].

Here are some suggestions to help you get your students to participate more actively with iClickers: Use Varied Question Types; Tie Participation to Learning Outcomes; Provide Immediate Feedback; Incorporate Peer Instruction; Use iClickers for Group Activities; Gamify the Experience; Provide Training and Support; Solicit Feedback.

While iClickers offer various benefits for classroom engagement and interaction, there are also potential disadvantages to consider when using this technology: Cost; Technical Issues; Learning Curve; Disengagement; Accountability Issues; Limited Question Types; Data Management; Privacy and Data Security; Accessibility; Overreliance on Technology [4]. By implementing these strategies, you can create a more engaging and participatory environment using iClickers in your classroom. Remember that building a culture of active participation takes time and consistent effort, but the benefits to student engagement and learning can be significant.

Takeaways:

- Active learning is actively engaging students in deep learning. One of these interactive learning techniques is the iClicker.
- This interactive tool fosters student involvement, encourages immediate feedback, and helps instructors gauge understanding levels. It creates a Safe Environment.
- While iClickers offer various benefits for classroom engagement and interaction, there are also potential disadvantages to consider when using this technology.

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517: The Student Negotiator: Incorporating Co-Creation into Assessment Strategies

Joanna Watkins, Fanshawe College

As the educational landscape evolves, incorporating innovative technologies, such as Generative AI, offers the opportunity for fostering student engagement and preparing them for a rapidly changing workplace. This presentation will introduce an innovative teaching practice that employs Generative AI to facilitate student-instructor negotiation for assessment co creation, thus driving student engagement and enhancing the learning experience.

Contract negotiation has been shown to be an effective method to increase employee engagement, by providing employees with a voice, fostering collaboration, and aligning the goals and expectations of both employees and employers. This presentation will present a model to demonstrate practical ways in which Generative AI can be used to foster co-creation through assessment negotiation. Working as a team, students can co-create assessment contracts by negotiating key issues and reflecting on their learning objectives. This process not only fosters a sense of ownership and clarity around assessment expectations but also promotes accountability, increased trust, and collaboration within the learning environment. This method has been found to be highly engaging and motivating at the undergraduate and graduate level and in both in person and online environments.

The presentation will provide an overview of the interplay between co-creation through negotiation and student engagement, as well as introduce Generative AI as an effective tool for educational co-creation. Examples of AI-generated content and student outputs will be presented along with various degrees of implementation of this approach into teaching practices.

Takeaways:

- Strategies for implementing Generative AI and negotiation in teaching to foster student engagement, trust, and accountability.
- Practical insights into adapting teaching practises to incorporate Generative AI without needing an overhaul of existing courses.
- Understanding the potential of Generative Ai in createing personalized and engaging learning experiences through student.

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