16TH ANNUAL UNIVERSITY OF WATERLOO TEACHING AND LEARNING CONFERENCE

Disruption and Uncertainty as Drivers for Change

ONLINE WORKSHOPS
WEDNESDAY
APR 30 2025

IN-PERSON SESSIONS
THURSDAY
MAY 01 2025

KEYNOTE

Navigating Change in Higher Education in Times of Hyper-Complexity

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PROFESSOR, DEAN OF THE FACULTY OF EDUCATION
UNIVERSITY OF VICTORIA

PLENARY

Igniting Our Practice

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ONLINE WORKSHOPS: **APRIL 30, 2025**
IN-PERSON SESSIONS: **MAY 1, 2025**

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Table of Contents

Description of Session Types

Online day	In-person day	Session Length
Online panel	Alternative session	60 minutes
Online workshop	In-person panel	60 minutes
	In-person workshop	60 minutes
	Presentation	60 minutes: three 15-minute sessions followed by a 15-minute Q&A session
	Poster Session	60 minutes

Online day (on Zoom) – April 30

Online workshop: 60 minutes. Refer to the in-person workshop format description.

Online panel discussion: 60 minutes. Refer to the in-person panel format description.

In-person day (Science Teaching Complex, Biology 2, and Federation Hall) – May 1

Presentation: 20 minutes (15-minute presentation, plus 5-minute discussion period). Share an approach, present empirical findings, or examine theoretical or methodological issues.

Panel discussion: 60 minutes. With a panel of colleagues, address different topics related to the conference theme and/or its sub-questions. Topics may raise issues and include insights from practice, research, or both. Panels may relate to one discipline, several disciplines, or integrate insights gained from working in an interdisciplinary/multi-disciplinary way. Panels should involve three to five panelists and a moderator, and should include a discussion period of 15 – 20 minutes.

Workshop: 60 minutes. Take participants through the process of designing and implementing a strategy or approach that you have used, and the insights gained and/or the research and literature behind those strategies or approaches. Workshops should include participant activities and provide opportunities for participants to consider application to their own teaching or student learning.

Alternative session format: 60 minutes. We invite you to propose a format for your session that may better suit your outcomes than the session formats suggested here. When submitting your proposal, please describe the session format and why it better supports your session outcomes.

Poster: Share an approach (practice-based) or present empirical findings (research-based).
This year, the poster session will take a new form. We want to recognize the work that goes into designing a poster and offer presenters multiple opportunities to showcase their research during the day.

- **Lunch screening** (projected on the big screen before the Igniting our Practice plenary, 1:00-1:45 p.m.). If poster presenters wish to have their posters projected they will need to send an electronic copy of their poster (in PDF format) to the organizing committee by April 28 at 12:00 p.m. (noon EST). Posters emailed after that date will not be included in the display. Presenters do not need to attend lunch to have their poster showcased.
- **Flash talk presentation (Concurrent Session 3, 3:00-4:00 p.m.)**: Participants will also be asked to deliver a 1-minute flash talk presentation in front of their display during the third series of concurrent sessions of the day. (Standing room only. Chairs can be accommodated.)
- **End-of-day reception** (5:15-6:30 p.m.): a more traditional poster session walk-around.

Wednesday, April 30, 2025

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

Session 101: Workshop - Speculative Pedagogy: Disrupting Uncertainty with Creative Envisioning

Shadia (Shed) Siliman, American University

Mary Catherine Stoumbos, American University

Mac Crite, American University

Speculative pedagogy (SP) explores how change is possible outside the classroom by envisioning and practicing disruptive changemaking within the microsociety of the course. Using theoretical and applied research on SP, this workshop will introduce SP through two lenses: as a tool for co-creating innovative, welcoming, and equitable classrooms with students. as a tool for helping students imagine the possibilities that our fields can support emerging from the uncertainties of the present. Through speculation, students can claim their own power in disrupting seemingly insurmountable systems of oppression. Instructors across disciplines and levels of teaching experience can use SP to help their students imagine exciting possibilities to address the complex, unclear problems facing society. We will begin our session with an interactive lecture that will include both explorative and productive applications of speculative pedagogy as well as salient consideration of critiques. Participants will be engaged through recurring check-ins (polls, free-writes, think-pair-share, etc.).

Online participants will then engage individually or in breakout rooms over questions such as:

- What uncertainties face your discipline that students could begin addressing with SP?
- What opportunities do your students have to practice exercising the power to imagine and construct a new reality?
- How does this speculative approach to teaching align (or not) with your teaching values?

We will conclude with time for participants to begin designing speculative pedagogy applications for their courses. The online format fits our session because we will incorporate: interactivity through technology; flexible participation based on participants' needs; and access for those who aren't able to attend in person.

Takeaways:

- Students can use speculation as a means of imaginatively envisioning new possibilities using their experiences, interests, and the tools they learn in your course. Set students up for success by asking them how they would reimagine a specific relevant issue, scaffolding heavily to avoid overwhelming students, providing clear prompts and multiple examples, giving feedback on drafts and prototypes, and including plenty of opportunities for reflection and metacognition.
- Faculty can use speculative pedagogy to facilitate conversations, activities, and assignments with students to collectively and imaginatively envision new possibilities for their classrooms using their experiences and interests. Faculty should center student voices and ideas, collaborate with and support students to envision what the course could be, and reflect on their own educational experiences and desires.

References:

- Vintimilla, C. D. (2023). Critique, Estrangement and Speculative Envisioning: Pedagogical Thinking and Otherwise Educational Worlds. Philosophical Inquiry in Education, 30(1), 16–25. https://doi.org/10.7202/1099899ar

- Garcia, A., & Mirra, N. (Eds.) (2023). Speculative Pedagogies. Mitrovic, I. (2015). Introduction to Speculative Design Practice – Eutropia, a Case Study.

Session 102: Workshop - Navigating Sensitive Topics in the Classroom through Non-Traditional Pedagogies

Tara Chen, Centre for Teaching Excellence; Geography and Environmental Management, University of Waterloo

Karmvir Padda, Sociology and Legal Studies, University of Waterloo

Disruptions inevitably shape the learning experience through heightened emotions, stress, and the need for flexibility and adaptability while ensuring the delivery of essential course content/requirements. This workshop focuses on using disruptions as opportunities to rethink how we navigate sensitive topics in academic settings with innovative and safe approaches that foster empathy, critical thinking and emotional resilience, using reflective and inclusive pedagogical practices.

Drawing from interdisciplinary research and practical applications, this workshop highlights non-traditional pedagogies that can be integrated into the classroom, leveraging vignettes as a teaching tool to simulate real-world scenarios. Led by the personal experiences of graduate student instructors and researchers, the workshop will present a series of vignettes that provide an overview of collaborative learner strategies such as one-to-one peer interviews, non-participatory observations, online ethnographies, outdoor reflective practices/seminars to offer a constructive way to explore challenging topics. In the workshop we will facilitate group discussions aimed at exploring how participants in the audience address these topics within their classroom environments. The focus will be on strategies for instructors to protect themselves and their students while ensuring that content and course requirements are not compromised.

This workshop is best suited for an online format to foster connections within the audience and facilitators. Real-time discussions, group reflections and debriefs during vignette exercises will allow facilitators to address specific concerns, clarify strategies and provide guidance on applying the tools and strategies in diverse teaching contexts.

Takeaways:

- To recognize the complexities and emotional challenges that educators and learners face when navigating sensitive topics
- To utilize vignettes to simulate real-world classroom scenarios, encouraging reflection and discussion on how to maintain a supportive and inclusive learning document
- To promote classroom interventions that promote student well-being and engagement, such as fostering a safe, inclusive, reflective learning environment

References:

- Ameli, K. (2022). Where is nature? Where is nature in nature and outdoor learning in higher education? An analysis of nature-based learning in higher education using multispecies ethnography. Journal of Teacher Education for Sustainability, 24(2), 113-128.
- Valtonen, T., Leppänen, U., Hyypiä, M., Kokko, A., Manninen, J., Vartiainen, H., ... & Hirsto, L. (2021). Learning environments preferred by university students: a shift toward informal and flexible learning environments. Learning Environments Research, 24, 371-388.
- Veal, W. R. (2002). Content specific vignettes as tools for research and teaching. The Electronic Journal for Research in Science & Mathematics Education.

Session 103: Panel - Mid-term Student Feedback as Disruption: to Pivot or not to Pivot

Andrea Atkins, Civil and Environmental Engineering, University of Waterloo

Carolyn MacGregor, Systems Design Engineering, University of Waterloo

Carol Hulls, Mechanical and Mechatronics Engineering, University of Waterloo

Richard Li, Centre for Teaching Excellence, University of Waterloo

Jennifer Howcroft, Systems Design Engineering, University of Waterloo

Brandon DeHart, RoboHub, University of Waterloo

The shift to emergency remote teaching during the pandemic had many instructors include mid-term student check-ins for formative course feedback. For a seasoned instructor, mid-course feedback is routine monitoring and an opportunity to engage with students about course expectations [1,2]. However, for someone new to instructing, teaching a course for the first time, or when there has been major change to course delivery, mid-term course feedback sets the stage for potential disruption for students and instructional teams. Whether as a formal survey from the instructor, feedback solicited by class representatives, or a cohort-specific facilitated meeting, our goal remains the same: check in while we have an opportunity to make a change. Feedback can offer insight into student perceptions on everything from course delivery and deadline scheduling to motivation levels and even instructor handwriting. The instructor is now left with the questions around how to use this information, effectively: "to pivot, or not to pivot? What "pivot" options are available to the instructor while still meeting the intended learning outcomes, maintaining the spirit of the syllabus, and minimizing negative disruption for the students and teaching team? What resources (time, money, support, etc.) will be needed to pivot from the original plan? Does it matter if it is an early-year core course or an upper-year elective? How does the instructor manage student perception if they do not make a change despite overwhelming requests for modifications? How do factors like these influence the decision to pivot or not to pivot? Our panel of Instructors, representing different career stages, will share their experiences around soliciting mid-term course feedback, and their decisions to pivot with course changes or not. Advice will include selecting an alternative to a pivot and how to best present a "no pivot" decision to maintain student-instructor rapport.

Takeaways:

- Participants will be challenged to consider how to best use mid-term student feedback when teaching to avoid unforeseen negative results and boost student-instructor rapport.
- Participants will be exposed to different types of feedback tools as used by the panelists, with a reference to more resources
- This panel would be ideally targeted at junior faculty, those teaching a course for the first time, or those making changes to their course who have more to benefit from doing mid-term surveys and may need advice on what to do with the data they receive

References:

- Diamond, M. R. (2004). The usefulness of structured mid-term feedback as a catalyst for change in higher education classes. Active Learning in Higher Education, 5(3), 217-231. https://doi.org/10.1177/1469787404046845
- Hoon, A., Oliver, E., Szpakowska, K., & Newton, P. (2014). Use of the 'Stop, Start, Continue' method is associated with the production of constructive qualitative feedback by students in higher education. Assessment & Evaluation in Higher Education, 40(5), 755–767. https://doi.org/10.1080/02602938.2014.956282

Session 104: Panel - Positive Disruptions: Sessionals and Creative Writing Teaching

Lamees Al Ethari, English Language and Literature, University of Waterloo

Jessica Van de Kemp, English Language and Literature, University of Waterloo

Carrie Snyder, English Language and Literature, University of Waterloo

Emily Urquhart, English Language and Literature, University of Waterloo

Claire Tacon, English Language and Literature, University of Waterloo

Authors and sessional instructors from UWaterloo's Department of English Language and Literature and St. Jerome's University address the challenges and successes of teaching creative writing courses. During this panel, we will share achievements and struggles with putting supportive frameworks into effect, especially during uncertainties around career development. We also draw connections between disruptions to sessional teaching, innovative approaches to teaching creative writing, and "pedagogies of care" (Barek, Namukasa, and Ravitch 2021). As stress and uncertainty over teaching contract renewals grow amid the hiring freeze, sessionals are increasingly engaging in a "flux pedagogy"—a trauma-informed stance of "radical compassion and self-care" (Ravitch 2020). Creative writing sessionals complement departments with their professional skills as published authors, editors, and mentors; their strategies disrupt our traditional understanding of pedagogical practices in the classroom. Panelists will give ideas on how to manage stress (e.g., expanded workload expectations) and bring skills (e.g., empathy, play, reflection, etc.) into the classroom and beyond that empower students to take control of their learning, urge instructors to rethink their approach during times of upheaval, and highlight the unique perspective that sessionals bring to evolving pedagogical practices centered on care, compassion, and flexibility. We will then invite attendees to join a 15-minute Q&A discussion with panelists, to brainstorm care-centered strategies, share experiences, or otherwise get some real-time feedback. This session encourages attendees to: (1) explore how sessional teaching impacts creative writing and ways to support well-being and community, (2) share ideas for creating flexible, inclusive classrooms that meet everyone's needs, and (3) discuss how to take care and stay balanced while teaching through change.

Takeaways:

- Understanding the achievements and struggles of putting supportive frameworks into effect, especially during uncertainties around career development.
- Empowering students through flexible, supportive, and inclusive classroom environments to develop their own unique voices as professional writers.
- Developing strategies to adapt, cope, and respond to challenges both in the classroom and beyond.

References:

- Barek, H., Namukasa, I., and Ravitch, S. (2021). Pedagogies of Care in Precarity. SAGE Research Methods Community. https://researchmethodscommunity.sagepub.com/blog/pedagogies-of-care-in-precarity
- McKinney, J., McKinney, K., Franiuk, R., and Schweitzer, J. (2006). The College Classroom as a Community: Impact on Student Attitudes and Learning. College Teaching 54(3), 281–284. https://www.jstor.org/stable/27559284
- Ravitch, S. (2020). Flux Pedagogy: Transforming Teaching and Learning during Coronavirus. Perspectives on Urban Education, 17(1), 1–15. https://urbanedjournal.gse.upenn.edu/volume-17-spring-2020/flux-pedagogy-transforming-teaching-and-leading-during-coronavirus

Session 105: Panel - Coordinate and Collaborate: How Academic Support Units Help Course Instructors Do More with Less

Claire Bermingham, Writing and Communication Centre, University of Waterloo

Jenna Hampshire, Student Success Office, University of Waterloo

Jirina K. Poch, Writing and Communication Centre, University of Waterloo

Angela Rooke, Student Success Office, University of Waterloo

Elise Vist, Writing and Communication Centre, University of Waterloo

Note: This panel will be recorded.

The pressures on course instructors and class time are increasing. Institutional financial constraints, adapting our teaching and assessment practices to GenAI, and students' changing needs and expectations mean that instructors are teaching in more complex learning environments and trying to do more with less each term. Student engagement, a key indicator of student success, relies on meaningful classroom experiences and a campus environment that encourages students to participate in activities and resources that support learning and personal development (Kuh et. al. 2006). Building connections between the classroom and "third space" learning opportunities enrich the student experience. These connections enhance learning and enable wholistic student development, incorporating students' past learning experiences, social positions and identities, goals, and needs.

This panel focuses on partnerships between course instructors and academic support services to demonstrate how embedded and adjacent student support result in positive impacts on students. Individual student outcomes – wellness, connection and belonging, agency, autonomy, meta-cognition –lead to larger institutional indicators of success, including learning transfer, equity, and retention (Correa & Symonds 2022; Kuh 2006; Zepke & Leach 2010). The presenters, representing various academic support areas, draw on student development theories and student success research to share practical ways that instructors can collaborate with academic support staff to enrich students' learning, engagement, and experience. Attendees will learn how they can draw on the resources of academic student support units to support student learning and success in an integrated approach and reduce the pressure on instructors and their courses to do it all.

Takeaways:

- The impact of instructors connecting students with academic support services in meaningful ways contributes to many factors of student engagement and leads towards student success. Academic support services can enhance and enrich in-class learning in ways that instructors may not have considered for their courses.

References:

- Correa, K., & Symonds, S. (2022). "I've Never Had to Do This on My Own": Support to Address Retention and Success for Emerging Adults. In T. A. Duncan & A. A. Buskirk-Cohen (Eds.), Cultivating Student Success: A Multifaceted Approach to Working with Emerging Adults in Higher Education. Oxford University Press. DOI: 10.1093/oso/9780197586693.003.0008
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the Effects of Student Engagement on First-Year College Grades and Persistence. The Journal of Higher Education, 79(5), 540–563. http://www.jstor.org/stable/25144692
- Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). What matters to student success: A review of the literature. National Postsecondary Education Cooperative. National Center for Education Statistics.

- Zepke, N., & Leach, L. (2010). Beyond hard outcomes: 'Soft' outcomes and engagement as student success. Teaching in Higher Education, 15(6), 661-673. DOI: 10.1080/13562517.2010.522084

Concurrent Sessions (200): Wednesday, April 30 (10:45am – 11:45am ET)

Session 201: Panel - How Do Graduate Student Instructors in STEM Navigate Challenges with the Help of Their Mentors?

Minzee Kim, Statistics and Actuarial Science, University of Waterloo

Chelsea Uggenti, Statistics and Actuarial Science, University of Waterloo

Rachel Beaver, Biology, University of Waterloo

Marcel Pinheiro, Biology, University of Waterloo

Jennifer Ellingham, Mechanical and Mechatronics Engineering, University of Waterloo

Beth Weckman, Mechanical and Mechatronics Engineering, University of Waterloo

Zachary Van Oosten, Statistics and Actuarial Science, University of Waterloo

Michael Wallace, Statistics and Actuarial Science, University of Waterloo

Note: This panel will be recorded.

Uncertainty and disruption impact not only student learning and instructor teaching via design and delivery, but graduate students who are tasked with offering such instruction. As we navigate the fast-paced changes in teaching environments – from global crises like the COVID-19 pandemic to rapid technological advancements like artificial intelligence – graduate students must also navigate the uncertainties that arise as new instructors. Graduate student instructors may face unique challenges such as a lack of experience in teaching and classroom management skills, limited time to adapt courses (Ayres, 2020), and balancing their instructor duties with their own student responsibilities, all of which requires support and guidance. Finch (2014) notes that the teaching experiences of graduate students are also shaped by the support they receive from faculty mentors. But what does this guidance look like? And how does it change during times of uncertainty? Our panel explores how disruption and uncertainty in higher education affects graduate student instructors' teaching by highlighting their experiences and, in particular, their relationships with their mentors. Three graduate students from STEM disciplines – Rachel Beaver (Biology), Zachary Van Oosten (Actuarial Science), and Jennifer Ellingham (Engineering) – and their respective mentors will be present to share their insights and perspectives. This panel will highlight: (1) the collaborative efforts between graduate students and their mentors in overcoming disruptions in teaching, and (2) how mentorship can shape adaptive teaching practices (Fountain, 2016), by asking intentional and thought-provoking questions like those listed below:

- What did your mentor do to help you navigate challenges when teaching?
- What strategies did you implement, and/or your mentor recommend, to support students with diverse needs?
- How did you manage high levels of stress while meeting teaching and research demands, and what role did mentorship play in managing this stress?

Takeaways:

- Identifying effective mentorship strategies that help STEM graduate student instructors navigate disruptions such as the COVID-19 pandemic and advancements in artificial intelligence.
- Examining how to effectively manage high levels of stress and workload while balancing the responsibilities as a course instructor and pursuing graduate studies as a student.

References:

- Ayres, T. B., & Winterberg, C. A. (2020). Practicing what “we are learning”: Insights and perspectives from graduate student instructors. Industrial and Organizational Psychology, 13(4), 577-580.
- Finch, J. K., & Fernández, C. (2014). Mentoring graduate students in teaching: The FCCIC model. Teaching Sociology, 42(1), 69-75.
- Fountain, J., & Newcomer, K. E. (2016). Developing and sustaining effective faculty mentoring programs. Journal of Public Affairs Education, 22(4), 483-506.

Session 202: Panel - Introducing an online, open-access short course for graduate students: "The limits of western paradigms for engaging with Indigenous Knowledge Systems"

Jodi Koberinski, Geography and Environmental Management, University of Waterloo

Kelly Fran Davis, Geography and Environmental Management, University of Waterloo

Steffanie Scott, Geography and Environmental Management, University of Waterloo

Colonial values and worldviews have long been replicated in research and knowledge generation within the university. Reconciliation, living in right relationships, responsibility and accountability around colonial harms are key themes disrupting the ways that education and research are conducted in Canada. They are also opportunities to improve our practices of research and teaching, and to consider ways to "Indigenize" and "decolonize" our campus. Yet many grad students may feel daunted and ill-prepared for engaging in research relating to Indigenous Knowledges and Indigenous peoples. How can graduate students improve their own awareness to avoid perpetuating these harms? Without examining the pedagogies, epistemologies, values and worldviews that shape academic research, it would be challenging to respectfully engage with Indigenous Knowledge Systems. This is the premise for our new online, open-access short course, "The limits of western paradigms for engaging with Indigenous Knowledge Systems", developed with funding from Desire2Learn.

We know that Indigenous-led initiatives are vital. At the same time, non-Indigenous ("settler") grad students can play important roles within their own research spheres. This starts with self-awareness, understanding the assumptions upon which Eurocentric or Western science and knowledge generation depends—the worldviews that form the foundation from which the university's approaches to knowledge generation have developed, across disciplines and over time. The course offers context to understand past harms, and then invites participants to explore calls to action for approaching Indigenous Knowledge Systems with integrity.

The panel session, led by three of the course authors, will be comprised of a tour of the course content and further context about its significance. We will then invite feedback about how and whether the content could be used by those attending in various teaching/training contexts with graduate students, and what other hesitations non-Indigenous educators or research advisors might be feeling around the topics of engaging with Indigenous Knowledge Systems.

Takeaways:

- Support for Indigenous research capacity—enabling Indigenous people to lead their own research—does not absolve non-Indigenous student researchers from learning how to respectfully approach Indigenous Knowledge Systems.
- Our three-module short course was designed to take necessary precursor steps to help scholars better understand what it means to see the institution as "colonized" and what self-reflection may be useful for scholars trained within a western paradigm to make sense of the notion of decolonizing higher education. The course was developed for graduate students in environmental studies and environmental sciences but is relevant for researchers in all fields.
- Consider ways to incorporate these online modules into your program's grad courses (in person or online). Review course material and consider whether these modules can enhance courses you already teach.

References:

- McGregor, D., Latulippe, N., Whitlow, R., Gansworth, K. L., McGregor, L., & Allen, S. (2023). Towards meaningful research and engagement: Indigenous knowledge systems and Great Lakes governance. Journal of Great Lakes Research, 49, S22-S31. 10.1016/j.jglr.2023.02.009

- Wong C, Ballegooyen K, Ignace L, Johnson MJ(G), and Swanson H. 2020. Towards reconciliation: 10 Calls to Action to natural scientists working in Canada. FACETS 5: 769–783. doi:10.1139/facets2020-0005
- Kapyrka, J., & Dockstator, M. (2012). Indigenous Knowledges and Western Knowledges in Environmental Education: Acknowledging the Tensions for the Benefits of a "Two-Worlds" Approach. Canadian Journal of Environmental Education, 17, 97-112.
- Smith, L.T., 2021. Decolonizing methodologies: Research and indigenous peoples. 3rd edition. Bloomsbury.
- Dr Ryan Arthur. 2024. Decolonising series - Episode 3: What is Epistemic Violence? (6 minutes)
- Yomantas, E. L. H. (2024). Developing a model for culturally responsive experiential education: Teachers as allies in student journeys of decolonization. Routledge.

Session 203: Panel - Leveraging 1Mentor's AI-driven insights and CEE-Faculty Partnerships to Strengthen and Evolve Work-Integrated Learning at the University of Waterloo

Tonya Elliott, Co-operative and Experiential Learning, University of Waterloo

Wayne Chang, Conrad School of Entrepreneurship and Business, University of Waterloo

Jessica Lang, Co-operative and Experiential Learning, University of Waterloo

Will Fawcett-Hill, Co-operative and Experiential Learning, University of Waterloo

Esteban Veintimilla, CEO and co-founder of 1Mentor

In the spirit of "creating resilient local and global economies to lead us into the future", this Co-operative and Experiential Education (CEE) project expands on the success of a 2023 pilot in the Waterloo Experience (WE)Accelerate program that involves leveraging Artificial Intelligence (AI)-driven insights of the 1Mentor platform to start addressing two primary objectives that are applicable across disciplines at the University of Waterloo:

1. Help students thrive in the ever-changing job market by improving their abilities to articulate the skills they possess and providing them with tailored career pathways and skill development plans that promote self-reflection and align with their studies
2. Identify and implement curriculum enhancement opportunities in an increasingly competitive work-integrated-learning landscape

Waterloo's Co-operative and Experiential Education (CEE) department is well positioned to support both co-op and regular students with our Centre for Work-Integrated Learning and Centre for Career Development staff, as well as some faculty connections within our Faculty Relations Manager team. Partnering with faculty to identify and implement curriculum enhancements, however, is an area in which we'd like to grow.

This online panel discussion will summarize current co-op and other work-integrated challenges students are experiencing, share a demo of the 1Mentor platform and some of the AI-driven data and insights from which students and CEE are benefiting, and invite faculty to share potential connections they see within their classes and curricula. Participants are ideally those who can directly influence course and/or program curricula within their disciplines.

Takeaways:

Participants of our online panel will benefit from the following:

- Increased awareness of the work Waterloo's CEE is doing in AI-driven work-integrated learning along with resources, data, and expertise that exists within the department; and
- Strengthened connections with others across campus who have an interest in work-integrated learning, and who can influence related course or program-level curriculum conversations

References:

- Ademuyiwa, I., Drewery, D., & Fannon, A. M. (2024). Can a work-readiness program mitigate unemployment scarring: the case of a co-operative education job market. Studies in Higher Education, 1–14.
- Dasilva, P. & Nofal, M. (2024). Building a Brighter Future: Matching Student Skills to Career-Focused Courses. https://cloud.google.com/blog/topics/public-sector/building-a-brighter-future-matching-student-skills-to-career-focused-courses/
- University of Waterloo (2024). Waterloo at 100: Global Futures https://uwaterloo.ca/waterloo-100/global-futures

- World Economic Forum (2023). The Future of Jobs Report 2023. https://www.weforum.org/publications/the-future-of-jobs-report-2023/in-full/1-introduction-the-global-labour-market-landscape-in-2023/

Session 204: Panel - You Keep Using That Word: The Impossibility of Disruption in HigherEd

Ann Gagné, Brock University

Danielle Lorenz, University of Alberta

Nicole Patrie, MacEwan University

Higher education has been filled with narratives about normative design, pedagogy, and procedures being disrupted and the impossibility of keeping up with disruption in an under-funded neoliberal education space. In this practice-based panel, three speakers will discuss the impossibility of disruption in higher education because of systems that do not allow for that disruption to actually take place. They will also expand on how disruption does not mean what you think it means. The first speaker will discuss how disruption is a word often used in relation to accessible pedagogies to prevent inclusive design strategies being part of curriculum review. In fact, in accessibility spaces, disruption is used as a framework to prevent actual inclusion (see Dolmage, 2017; Price, 2024) and for push-back against accommodation supports.

The second speaker will address how particular discourses around reconciliation, decolonization, and Indigenization function and thus impact the possibility of disrupting settler colonialism within higher education (Pidgeon, 2022; Tuck & Yang, 2012).

The third and final speaker will address how narratives found in education in prison tend to position education as disrupting the carceral state (or the carceral experience). When higher education is held as the answer, presence of students inside carceral institutions—the mere act of being allowed to participate in higher education—is seen as disruptive, and the focus shifts to individual transformation (see Gordon et al., 2022; McAleese & Kilty, 2020).

Participants will be given time to reflect on ideas presented by the panelists and opportunities to discuss the tension between disruption as a narrative and seeming impossibility as praxis in their own disciplinary areas. An asynchronous resource will also be shared to support continued conversation after the panel.

Learning outcomes:

- Assess the use of disruption or connotative terms in inclusive pedagogy work
- Develop discipline specific responses to disruption narratives that support inclusion and equity

Takeaways:

- Discovering how disruption is a word that has incredible disciplinary context and power.
- Formulating discipline specific responses to disruption narratives that take into account power and positionality.

References:

- Dolmage, J. (2017). Academic Ableism: Disability and Higher Education. University of Michigan Press.
- Gordon, D., Posadas, J., Cipriano, B. M., Parker, A. L., & Ocean, M. (2022). Incarceration-based educational opportunities: Transforming students, families, the college, and communities. *Community College Journal of Research and Practice, 47*(8), 560–563. https://doi.org/10.1080/10668926.2022.2064377
- McAleese, S., & Kilty, J. M. (2020). “Walls are put up when curiosity ends”: Transformative education in the Canadian carceral context. *Journal of Prison Education and Reentry, 6*(3), 275–-293. https://doi.org/10.25771/5mgk-3w92

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Session 205: Panel – Collaborative Resilience: Navigating Educational Disruptions through Collective Wisdom

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

Emma McDougall, School of Planning, University of Waterloo

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

Robert Hill, Physics and Astronomy, University of Waterloo

Derek Rayside, Electrical and Computer Engineering, University of Waterloo

In these times of volatility, uncertainty, complexity, and ambiguity (VUCA), higher education faces unprecedented challenges that impact student learning. Thriving in such an environment requires not only that students adapt their learning strategies but also that instructors reimagine their teaching approaches. This panel explores how instructors have collaborated across disciplines to create innovative learning opportunities that simultaneously empower students to navigate and succeed in a VUCA world and challenge instructors to evolve their pedagogical practices. Drawing from their diverse experiences, three instructors will share how they've implemented student-centered, collaborative strategies that transcend traditional content-driven models and disciplinary boundaries, requiring both students and faculty to step out of their comfort zones.

The panelists will discuss:

1. Strategies for designing cross-disciplinary learning experiences that develop students' VUCA management skills while pushing instructors to adopt new teaching methodologies
2. Examples of collaborative initiatives that enhance program relevance and student employability, including the SLICC framework which requires instructors to shift from content providers to facilitators of student learning
3. Methods for leveraging collective expertise to create high-impact learning opportunities, encouraging instructors to collaborate across disciplines
4. Approaches to fostering a collaborative culture that prioritizes student success and innovation in teaching, challenging traditional instructor roles

By highlighting real-world examples and practical strategies, this session aims to demonstrate how collaboration can enhance the quality and relevance of education, fostering students' ability to thrive in complex, uncertain environments while also promoting instructor growth and adaptability. Together panelists and participants will explore ways that collaboration might create value-added learning experiences that prepare both students and instructors for the challenges of a VUCA world, while navigating institutional constraints. The panel will engage participants through interactive discussions, encouraging them to share their own experiences and brainstorm collaborative solutions to enhance student learning and instructor development in their institutions.

Takeaways:

- Practical strategies for initiating and sustaining cross-disciplinary collaborations that prioritize student success and instructor adaptation in a VUCA world
- Examples of innovative, student-centered learning initiatives resulting from inter-departmental collaboration that challenge traditional teaching paradigms
- Insights on fostering a culture of collective problem-solving to enhance institutional resilience and create high-impact learning experiences for both students and instructors

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Concurrent Sessions (300): Wednesday, April 30 (1:00pm – 2:00pm ET)

Session 301: Panel - Disruption as a driver for innovation and design of the Graduate Teaching Assistant Training for the School of Architecture in the Faculty of Engineering

Carolyn MacGregor, Systems Design Engineering, University of Waterloo

Taru Malhotra, Dean of Engineering Office, University of Waterloo

Rick Andrighetti, School of Architecture, University of Waterloo

Sabrina Saiko, Systems Design Engineering, University of Waterloo

Vanessa Drmac, School of Architecture, University of Waterloo

Teaching Assistants (TAs) in higher education play an important role by serving as crucial link between faculty and students, managing course components, and supporting student cohorts. Although TAs often possess technical knowledge, they may lack understanding of university policies and pedagogical theories. Consequently, training is essential to equip them with the requisite knowledge and skills. The effectiveness of TAs in facilitating student learning, promoting academic engagement, and enhancing faculty teaching efforts relies heavily on the quality and relevance of their training.

The existing research on TA training is multifaceted, covering a range of pedagogical strategies that directly influence TA performance. These strategies may include providing feedback through observation sessions (Lang et al., 2020), teaching discourse intonation (Gorsuch, 2018), and offering class rehearsal simulations (Geraets et al., 2021). However, the effectiveness of these strategies is discipline and context-dependent (e.g. STEM specific), underscoring the need for adaptable, specific training methodologies (Armstrong et al., 2021; Gorsuch, 2018; Justice, 2020; Lang et al., 2020; Rivera, 2018).

Pre-Covid versions of TA trainings within the Faculty of Engineering were an in-person 2-day workshop. Post-Covid, these trainings moved to online platforms with several evolving versions of TA trainings to finally reach its current hands-on activity-based version. Hoping to design a specialized TA training to meet the needs of TAs for the School of Architecture, we designed ExpecTAtions_Arch.

In this panel we will bring together all stakeholders and reflect on our Graduate Teaching Assistant training for the School of Architecture - our vision of this training, design process, delivery, and experiences of our instructors and TAs of the School of Architecture.

Takeaways:

- This session will offer insights on the design process of a graduate teaching assistant training program, keeping in mind the requirements of the course, program/department and school and the needs of instructors and teaching assistants.
- This session will offer guidance to universities, faculties, schools and departments and suggest ways to customize their training based on the needs of all the stakeholders and the discipline itself.

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Session 302: Panel - From Disruption to Inclusion: Bridging Intercultural Barriers for International Students

Sinem Ozkardas, Writing and Communication Centre, University of Waterloo

Amanda de Oliveira Fogaça, Writing and Communication Centre, University of Waterloo

Min Huang, Student Success Office, University of Waterloo

Rodrigo Curty Pereira, Centre for Teaching Excellence; Geography and Environmental Management, University of Waterloo

International students face significant challenges on their road to academic success such as language barriers, culture shock, and social isolation, highlighting the urgent need for universities to create inclusive and supportive environments. In this panel, attendees will have the opportunity to reflect on their multicultural and inclusive teaching practices, identifying gaps in teaching and learning that exacerbate challenges for international students and create barriers to collaboration between students and faculty. This panel discussion will delve into how the disruption and uncertainty experienced by international students can catalyze transformative changes in teaching and learning practices. The session will open with insights from a Ph.D. study conducted among international students at the University of Waterloo, which employed a mixed-method approach to examine second language pragmalinguistics, culture shock, and social identity formation. The research findings show that while exposure to a new cultural environment reshapes communication strategies, it often negatively impacts emotional well-being and a sense of belonging. Additionally, barriers arising from intercultural differences and institutional shortcomings were identified as ongoing challenges. To humanize the data, the panelists, who all have lived experiences as international students in Canadian higher education, as well as professional roles at the university, will share personal narratives, bringing the student experience to life. Open discussion time will allow participants to share their own experiences and learn from each other. The session will conclude with practical strategies for instructors and institutions to foster more inclusive classrooms and support systems, such as designing culturally sensitive assignments, implementing peer mentorship programs; and encouraging cross-cultural dialogue and collaboration in our classrooms.

Takeaways:

- Designing Culturally Sensitive Assignments: Create assignments that acknowledge and incorporate the diverse backgrounds of international students, making them feel included and respected.
- Creating Support Networks for International Students: Help international students connect with peers and faculty to navigate academic and social challenges more effectively.
- Fostering Cross-Cultural Dialogue and Collaboration: Encourage open discussions and group work in the classroom to promote understanding and collaboration across cultures.

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Session 303: Workshop - Implementation of a Blended Learning Program for Equipping Students to Engage in Constructive Dialogue*

*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 exists a growing literature demonstrating the impact of university students' self-censoring in the classroom. In an American survey, students reported significant fear of making a 'mistake' when speaking in class. 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. 'Perspectives' is a psychology-based, online educational tool for fostering constructive dialogue on student learning experiences. 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 this workshop, we will deliver an interactive, four part session centred upon the implementation of 'Perspectives' in undergraduate public health courses. In Part 1, we will facilitate a discussion exploring the dynamic nature of the tool and its applicability across disciplines. In Part 2, we will present our experience using the tool in undergraduate public health courses with an emphasis on techniques for increasing student engagement. In Part 3, we will outline an evaluation strategy for assessing the impact of the tool on students' intellectual humility and conflict resolution skills. Finally, in Part 4, we will facilitate a group discussion regarding the implementation challenges that instructors may face focusing on enablers to wider scale use. Our learning outcomes are to provide an overview of the 'Perspectives' tool, to identify its utility in increasing student engagement, and to explore its implementation in diverse classroom settings. We will leverage the virtual, online environment by employing Think-Pair-Share activities in addition to Mentimeter polling to actively engage workshop participants. Through this workshop, attendees will be provided key insight into the implementation of 'Perspectives,' which can be leveraged for wider scale implementation in university classroom settings.

Takeaways:

- Attendees will gain actionable strategies for integrating the 'Perspectives' tool into their undergraduate courses, including techniques to foster intellectual humility, encourage diverse viewpoints, and enhance student engagement across various disciplines.
- Participants will learn how to design and implement an effective evaluation strategy to measure the impact of 'Perspectives' on students' intellectual humility and conflict resolution skills, ensuring meaningful improvements in classroom dialogue.
- Instructors will leave with practical solutions to common challenges faced during the adoption of 'Perspectives,' including strategies to maximize enablers and mitigate potential barriers to wider-scale implementation in university settings.

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Session 304: Panel - Courageous Compassion: Leveraging Kindness and Care to Build Resiliency in STEM Communications Classrooms

Allyson Conrad, English Language and Literature, University of Waterloo

Ashley Irwin, English Language and Literature, University of Waterloo

Jay Rawding, English Language and Literature, University of Waterloo

Megan Selinger, English Language and Literature, University of Waterloo

Jessica Van de Kemp, English Language and Literature, University of Waterloo

In this panel, writing instructors from UWaterloo's Department of English Language and Literature address the successes and challenges of teaching required communication courses to students in three faculties: Engineering, Math, and Science. Despite the disruptions and uncertainties of sessional (i.e., short-term contract) teaching, the instructors are all dedicated to using "a pedagogy of kindness" (Denial 2019; Rawle 2021) in the first-year undergraduate classroom to build safe, equitable, and inclusive learning environments that promote belonging and practices of care. Sharing their pedagogies and practices, the panelists discuss how to incorporate support systems and interventions into their courses; for instance, they will go over educational tools and techniques, such as "syllabus revision" (Fuentes et al. 2021), "student-centered course policies" (Christe 2013), and "mindfulness" (Elias 2021; Liddle 2023) that push back against passive listening, and reflective writing that can help reduce instructors' and students' stress when dealing with a constantly changing teaching and learning environment.

This discussion is applicable across a multitude of disciplines, including social psychology, developmental psychology, educational psychology, STEM education, social justice, and higher education research, as adopting teaching practices that foster growth mindset, belonging, equity, and inclusion have often been found successful for increasing students' resiliency (Caruana et al. 2014) and success (Saville et al. 2012; Christe 2013 and 2015) in higher education classrooms. As the need for more research rises, there have been several frameworks and repositories established to gather data and provide strategies for improving student success and the overall student experience in higher education. Initiatives such as the Care and Equity in Teaching Fellowship with Renison University College and resources such as the Student Experience Project, Advance HE at the University of York (UK), The Higher Education Hub, and Classroom Practices Library with Indiana University's Equity Accelerator are examples of research and repositories designed to equip instructors to establish practices and policies that support kindness, equity, inclusion, belonging, and care.

The panel will share various first-hand pedagogical examples and strategies in order to demonstrate that the stressful challenges of teaching technical communication courses can also bring about effective opportunities to practice genuine care and foster a sense of equity and belonging. In the spirit of making room for "the unpredictable and unexpected" (Denial 2019), the panel will highlight instances when deviating from rigid scheduling or curriculum models and adjusting syllabi and course policies helped to enhance the classroom experience and encouraged resiliency. By the end of the presentation, attendees will have been introduced to an array of potential ways to incorporate student-centered support systems and interventions into their own respective classrooms.

This session invites attendees to: (1) share their success strategies and comments from their own teaching experiences, (2) explore how to create a caring and supportive learning environment, and (3) participate in a collaborative brainstorming session to develop engaging writing activities that help instructors and students build resiliency in the face of uncertainty.

Takeaways:

- To inspire ideas and activities that help incorporate the pedagogy of kindness into our Engineering, Math, and Science classrooms;
- Suggestions for addressing and employing effective strategies regarding student and instructor burnout;
- To foster agency and belonging in our classes in order to encourage curiosity, build resiliency, and encourage students to embrace change and uncertainty; and
- To ensure student reflections and reflective practices are both authentic and positive.

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Session 305: Workshop - Mobilizing Action on the Global Futures via the Community-Embedded Classroom

Tania Del Matto, United College, University of Waterloo

Sean Geobey, School of Environment, Enterprise and Development, University of Waterloo

Erin Hogan, United College, University of Waterloo

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

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

This session will explore how a novel Community-Embedded Classroom (CEC) teaching framework equips students to solve problems in the intersections of the Global Futures using authentic assessment (Messier, 2022), leveraging a diversity of knowledge, lived experiences and socio-emotional skills (Giammarco & Higham, 2023) to generate solutions that will work for all.

Integrating Problem-Based Learning (PBL), Social Innovation Lab structures (Westley et al., 2014), and Community Integration Frameworks, the CEC framework initiates learning by equipping students to address real-world problems (Hung, 2011) in collaboration with community members.

Through courses in the Faculty of Environment (ENBUS 314) and Faculty of Health (HLTH 408) the CEC pilots have demonstrated value for students, community stakeholders, course instructors, and campus partners. According to survey data and testimonials from students, the CEC model had a positive impact on student learning, allowing them to see themselves as changemakers and build skills that bridge academia and the real world.

Attendees will participate in a workshop activity that allows them to experience the CEC model firsthand and leave with a lived experience of its value. This activity will help attendees understand the active role that instructors play as co-learners in a CEC classroom and connect to several High Impact Practices that result in deep learning engagement.

Through hands-on activities, group discussion, and a panel presentation, attendees will identify different pathways for equipping students as changemakers and understand the Community-Embedded Classroom as a sustainable form of community-university collaboration and relationship building.

Learning Outcomes:

- Understand how the CEC framework transforms classrooms into social innovation spaces
- Experience the CEC framework through hands-on activities with fellow participants
- Explore CEC as a solution to several challenges with traditional problem-based learning and social innovation labs
- Generate key requirements for effectively integrating community engagement in the classroom and strategize ways to overcome implementation constraints and barriers

Takeaways:

- Embedding community engagement into the classroom addresses several barriers common to traditional problem-based learning and social innovation labs
- Collaborating with community members on authentic, real-world problems supports students in seeing themselves as changemakers
- The CEC framework provides multi-level learning opportunities with benefits for students, faculty, community members, and the University

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Concurrent Sessions (400): Wednesday, April 30 (2:15pm – 3:15pm ET)

Session 401: Panel - Supporting Graduate Student Development for the Future of Academia via Teaching Mentorship

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

Karla Boluk, Recreation and Leisure Studies, University of Waterloo

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

Michelle Ogrodnik, Kinesiology and Health Sciences, University of Waterloo

Isra Ahmad, School of Public Health Sciences, University of Waterloo

Maggie Miller, George Brown College

Bobbi Rotolo, School of Public Health Sciences, University of Waterloo

Jasmine Nijjar, Recreation and Leisure Studies, University of Waterloo

Lisbeth Berbary, Recreation and Leisure Studies, University of Waterloo

While doctoral programs effectively train students in research, they provide limited or no training for faculty careers that involve teaching (Robinson & Hope, 2013). Consequently, new graduates often feel unprepared and overwhelmed by the responsibilities associated with faculty positions, such as developing courses and teaching materials that align with course goals and objectives, devising tests and evaluations, and delivering course content (Hoffmann & Lenoch, 2013; Austin, 2002).

The goal of this panel is to initiate a discussion on teaching mentorship for PhD students from the perspectives of graduate students, graduate alumni, and faculty. Specifically, we will explore (a) what teaching mentorship opportunities are available for PhD students at UW and other university campuses; (b) how teaching mentorship might address the needs of PhD students and new graduates; and (c) what supports PhD supervisors require to offer their students strong teaching mentorship. The panelists will present a brief overview of the models available for teaching mentorship of PhD students and initiate a discussion with attendees to learn more about the needs of PhD students and supervisors. Overall, the goal of this panel is to create a better understanding of the opportunities and resources required for introducing a more formal approach to teaching mentorship for PhD students.

This panel aligns with the conference theme by disrupting the traditional, research-intensive model of PhD training and calling on university stakeholders to reimagine the role of teaching mentorship in doctoral programs. Considering the increasing trend of teaching stream positions, we hope that this conversation will help generate ideas for enhancing faculty and graduate student relationships through the context of teaching mentorship.

Takeaways:

- While we provide graduate students with rigorous research training, much less attention is given to pedagogical training.
- PhD students feel unprepared for teaching in academia and would like to receive more teaching mentorship.

- There are some models that can be integrated by PhD supervisors to provide their students with strong teaching mentorship.

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Session 402: Panel - Holding Space for and Being Present with Uncertainty and Dysregulation: Working Through Experiences of Racism, Genocide, and Nature Disconnection*

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

Ileana Diaz, Geography and Environmental Management, University of Waterloo

Maryam Mohiuddin Ahmed, Knowledge Integration, University of Waterloo

Steffanie Scott, Geography and Environmental Management, University of Waterloo

Our three presentations offer stories of how we, as educators, helped to address nervous system dysregulation and mental health challenges entangled with ongoing and accelerating contexts of humanitarian crises and polycrises locally and globally, individually and collectively.

- Through supporting IBPOC students who often contend with their lived experiences of racism and imposter syndrome in academic spaces as psychological, emotional, and embodied disruptions
- Through supporting students process complex emotions, entanglements and facets of identities in relation to ongoing genocides and armed conflicts globally by providing brave spaces, sharing circles, advocacy tools and systemic lenses
- Through introducing place-based learning, nature connection, and contemplative practices into teaching and learning, building a sense of belonging—to the land and to a community of peers.

Presentation 1: Experiences of Indigenous, Black, and peoples of color (IBPOC) in academia have been riddled with acts of violence, psychological aggression, lack of acknowledgment, and gaslighting. Ongoing racism and structural barriers mean fewer opportunities for mentorship and knowledge-sharing, which are essential to academic success. To begin to address these, I facilitated spaces where IBPOC could come together to share their lived experience and work on writing projects alongside one another for support, drawing on an antiracist and anti-oppressive framework.

Presentation 2: How to approach teaching and learning human rights and discrimination in a time of ongoing polycrises, genocides and armed conflicts? By providing brave spaces that hold complexity, decolonial, critical and systems thinking lenses. I share learnings from my course on Discrimination and Canadian Human Rights. We co-created ground rules for engagement and we integrated circle time to openly share our emotional and affective states.

Presentation 3: Young people are particularly vulnerable to climate distress and anxiety. Research in our new eBook shows that incorporating nature connection enhances student engagement, promotes environmental responsibility, and nurtures a sense of community and belonging. As educators, we can support opportunities for reconnecting with land and ecology, navigating colonial histories and structures, empowering students as agents of change, fostering intersectional and interdisciplinary approaches, and advocating for institutional change.

Takeaways:

Leveraging disruptions as occasions to innovate and improve our educational practices, we share approaches to maintain and increase student engagement and support during times of upheavals, and approaches to limit the impact of disruptions on students' and educators' mental health. These include:

- spaces where IBPOC students could come together to share their lived experience and work on writing projects alongside one another for support
- compassionate classroom dialogue about genocide and human rights in the setting of circle learning
- ways to reconnect students with land and ecology, while navigating colonial histories and structures

In our session, we will also share:

- tips on getting started with using circle pedagogy and relational tools such as creating song playlists relevant to social justice-related course themes.
- how to incorporate transdisciplinary approaches by bringing in critical and decolonial discourses and adding experiential learning components into coursework
- guiding principles for holding space
- highlights from and point instructors to a new eBook on Nature Connection Across the Curriculum: Resources for Post-secondary Educators. The suggested activities in the eBook are suitable for a variety of educational settings.

References:

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Session 403: Panel - Brescia's Legacy: "Disruptive" Pedagogy for Student-Centred Education

Katie Holmes, Western University

Heather Kirk, Western University

Alicia Robinet, Huron University

Colleen Sharen, Western University

Christine Tenk, Western University

Brescia University College was founded in 1919 by the Ursuline Sisters as Canada's first women's-only, faith-based university (Skidmore, 1980). The establishment of this university disrupted the prevailing educational environment by challenging the historically exclusionary education system dominated by white, male, upper- or middle-class students (McCargar, 2016). The Ursuline tradition of education values the dignity and potential of every human person; as enacted at Brescia, it created a vital space for women to pursue advanced learning and assert their intellectual presence. Until its closure on April 30, 2024, the Ursuline tradition of education was alive and vibrant at Brescia through its faculty and student-facing staff who were committed to delivering inclusive and holistic education that encouraged diversity of thought and expression, and promoted social justice and equity.

In the aftermath of Brescia's closure, faculty and staff are "disrupting" the existing educational spaces at Western and Huron universities by carrying forward their inclusive, holistic, student-centred pedagogies. In this panel, five members of Brescia's Interdisciplinary Feminist Pedagogy Project research group will deliver examples of their "disruptive" pedagogies including enabling learner agency and shared power, teaching from a knowledge justice lens, and cultivating an ethic of care. Discussion will centre on teaching approaches as innovative opportunities to leverage disruption in order to enhance the university learning experience (Sallah, 2020). At the end of this panel, attendees will have analyzed the teaching culture of their own institution and identified ways in which these frameworks support or hinder effective teaching. Attendees will also plan ways to integrate student-centred, inclusive, and holistic strategies into their own teaching practice to improve learner success.

Takeaways:

- Learn how to analyze the teaching culture of one's institution and identify ways in which these frameworks support or hinder effective teaching
- Plans ways to apply student-centred, inclusive, and holistic strategies to one's teaching practice to improve learner success

References:

- McCargar, M. (2016). Femininity and higher education: Women at Ontario Universities, 1890 to 1920 (Doctoral dissertation, The University of Western Ontario (Canada)).
- Sallah, M. (2020). Generating disruptive pedagogy in informal spaces: Learning with both the head and the heart. Vzgoja in Izobraževanje, 51(4-5).
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Thursday, May 1, 2025

Keynote: 8:30am – 10:00am ET

At the Roundabout: Navigating Change in Higher Education in Times of Hyper-Complexity

Dr. Vanessa Andreotti, Professor and Dean of the Faculty of Education, University of Victoria

In times of social, economic, ecological, and psychological instability the university does not stand at a crossroads with a clear left-or-right decision. Instead, it finds itself at a roundabout with multiple exits, no obvious straight path, and the tempting option to simply keep circling. The question is not simply which direction to take, but how we recognize the habitual thinking that guides our choices—are we navigating with awareness of what is shifting at systemic and structural levels in society, or are we tracing familiar loops because they give us a sense of certainty, safety and continuity?

This talk explores how the stacked challenges facing higher education—including financial precarity, political polarization, ecological and mental health destabilization, technological disruptions like AI, and institutional inertia—are not isolated issues, but interconnected symptoms of deeper systemic shifts unsettling the foundations of modern societies. At the heart of this argument is the idea that what's needed is not just new content, policies, or reforms, but a shift in how we approach complexity itself. In a moment when circling the roundabout feels more comfortable than choosing an exit, this is a call to pause, take stock, and consider: What new possibilities emerge when we change not just our direction, but how we choose to navigate?

Concurrent Sessions (100): Thursday, May 1 (10:20am – 11:20am ET)

Session 101: Presentations - Accessibility

101a: When It Comes to Course Accessibility, What's Important to Students?

Christine Zaza, Centre for Extended Learning, University of Waterloo

In 2022, the Ontario government released the proposed Postsecondary Education Standards recommendations under the Accessibility for Ontarians with Disabilities Act (AODA). Since that time, there has been much uncertainty and speculation about how, and when, these proposed Standards will be enacted and what they will mean for instructors.

In this time of uncertainty, many instructors are seeking clarity on what accessibility practices they are, and will be, required to implement, and how they should prioritize those requirements. In conversations about accessibility, instructors often ask: "If I only have time to make only one change to improve course accessibility next term, what can I do that will have the biggest impact for students?" To help address this question, the author conducted a survey to find out what course accessibility practices students consider to be the most important for their learning.

A survey was conducted from June 24 to December 3, 2024. The "Students' Perceptions on the Importance of Course Accessibility on their Learning Experience" survey included demographic questions, the accessibility criteria from Postsecondary Course Accessibility Guide and two open-ended questions. Participants were asked to rate the importance of each of the accessibility criteria on their learning experience.

In total, 1,758 University of Waterloo students responded to the survey invitation. Participants included undergraduate and graduate students, with and without disabilities, from all six Faculties. This session includes a description of this study's main findings as well as recommendations for instructors, based on these findings.

Takeaways:

- Which course accessibility practices are most important to students
- How can findings from this student survey help guide our approach to implementing accessibility measures in courses

References:

- Development of proposed postsecondary education standards — final recommendations report 2022 https://www.ontario.ca/page/development-proposed-postsecondary-education-standards-final-recommendations-report-2022
- Postsecondary Course Accessibility Guide https://contensis.uwaterloo.ca/sites/open/resources/accessibility-guide/pages/pca-guide-en.aspx

101b: Is Your Learning Environment Health-Inclusive? Reimagining Accessibility and Inclusion in Higher Education in the Age of Crowded Classrooms and Shared Air

Ryan Tennant, Systems Design Engineering, University of Waterloo

The ongoing spread of airborne illnesses represents a major disruption to accessibility and inclusion in higher education, jeopardizing the right to learn safely and the collective progress that equitable education fosters in society. Physical presence is often required for students to fully exercise their right to learn, yet this requirement disproportionately impacts individuals who are at greater risk of poor health outcomes if infected. Crowded classrooms and shared indoor air heighten the risk of infection for all. These conditions disrupt the collective stability and continuity of educational environments and undermine the role of higher education as a safe and inclusive space for learning.

The author introduces an innovative framework, Health-Inclusive Pedagogy (HIP), which they developed from a literature review on disability, inclusion, and infectious disease safety in higher education to respond to the disruption posed by airborne illness. At its core, HIP embraces education as a fundamental human right that must remain accessible—even in the most challenging circumstances. HIP expands upon Universal Design for Learning and Trauma-Informed Education, as well as the limitations within the postsecondary recommendations to the Accessibility for Ontarians with Disabilities Act. HIP offers practical strategies for instructors while informing policy to ensure everyone can safely access and fully participate in the learning environment by:

- understanding health needs, social determinants of health, and invisible risk factors
- embracing flexibility and predictability over rigidity in the learning environment

Practical actions for understanding health needs include community-centred syllabi, wellness check-ins, and facilitating health awareness. Flexible and predictable environments support multiple participation options, prioritize evidence-based health and safety measures, and integrate and promote a classroom culture of empathy, wellness, and inclusion. By the end of this presentation, participants will be able to connect teaching and learning practices to HIP to improve classroom accessibility in the context of airborne illnesses.

Takeaways:

- The spread of airborne illnesses in higher education spaces must be recognized by educators and institutions as a major disruptor to accessible and inclusive learning for students with health risks, while also impacting learning continuity and stability.
- Health-Inclusive Pedagogy is a literature-informed framework that expands on Universal Design for Learning and Trauma-Informed Education to ensure higher education environments are safe and inclusive spaces for everyone.
- Health-Inclusive Pedagogy supports accessibility in response to airborne illnesses by implementing strategies to understand students' invisible needs and disabilities, health impacts, and health barriers, and integrating hybrid-flexible teaching, fostering empathy and care, and creating healthy physical spaces to mitigate airborne transmission.

References:

- Brooks-Pollock, E. *et al.* High COVID-19 transmission potential associated with re-opening universities can be mitigated with layered interventions. *Nat Commun* 12, 5017 (2021).
- Compton, M., Standen, A. & Watson, B. 'Not as a temporary fluke but as standard': realising the affordances of hybrid and online teaching for inclusive and sustainable education. JLDHE (2023) doi:10.47408/jldhe.vi26.948.
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101c: Creating Accessible Digital Learning Environments: Navigating Disruption and Uncertainty to Support AODA Compliance

Erin Jobidon, Centre for Work-Integrated Learning, University of Waterloo

Will Fawcett-Hill, Centre for Work-Integrated Learning, University of Waterloo

Christine Zaza, Centre for Extended Learning, University of Waterloo

In a world increasingly marked by volatility, uncertainty, complexity, and ambiguity (VUCA), the Centre for Work-Integrated Learning (CfWIL) strives to deliver courses and programs that enable our students to be responsive to the VUCA world by fostering life-long learning mindsets, adaptability, and self-direction (Stevens, Pretti, and McRae, 2024). Notably, the raison d'être of Waterloo Experience Accelerate (WEA) is to provide unemployed students with a meaningful WIL alternative. The WEA program provides opportunities for students to develop life-long learning mindsets and enhanced self-awareness while exploring, developing and applying in-demand skills and knowledge to real world projects. Johnston (2017) notes that developing self-direction and skills development are essential experiences for students amidst climates of change and as preparation for the transition from school to work.

Additionally, incoming changes in the Government of Ontario's AODA Higher Education Standards, bring positive advancement towards accessible education for all. However, while higher education responds to the proposed recommendations there will certainly be a period of change and uncertainty. The new WE Accelerate stream 'Creating Accessible Digital Learning Environments', was developed in response to this disruption. This collaborative effort between the CfWIL, Centre for Extended Learning (CEL), and the Accessible Education group aims to equip students with the knowledge and skills required to support campus stakeholders in adapting their learning materials to meet these new standards.

This session will explore how campus challenges can be transformed into opportunities for innovation and growth and highlight the collaborative efforts that have made this initiative possible. Potential project experiences for students will be showcased, including working with Waterloo staff and faculty to update or create accessible learning materials. Participants will learn how they can get involved with the program should they wish to work with a student team to enhance and/or update their course materials towards a more accessible campus.

Takeaways:

- Understand the importance of creating accessible digital learning environments in compliance with AODA and WCAG standards.
- Learn about the collaborative efforts between CEL, CfWIL, and the Accessible Education group in developing and delivering this new WEA stream.
- Learn how to get involved as a project partner to access support with improving course material with accessibility and universal design for learning in mind.

References:

- Johnston, N. (2017), "Navigating Continuous Change: A Focus on Self-Direction and Skills and Knowledge Transfer", Work-Integrated Learning in the 21st Century (International Perspectives on Education and Society, Vol. 32), Emerald Publishing Limited, Leeds, pp. 19-33. https://doi.org/10.1108/S1479-367920170000032001
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Session 102: Presentations - Indigenous Pedagogies

102a: Lowering the Adoption Barrier for Methods of Social Inquiry in the Engineering Curriculum - Lessons for Assimilative Engineering Research and Practice in Indigenous Communities

Abhiroop Chattopadhyay, University of Illinois

Ann-Perry Witmer, University of Illinois

Engineering design is an inherently interdisciplinary discipline, since engineers working with communities must understand the social contexts in which they work. In addition to being technically competent individuals, practicing engineers must also have an appreciation of how community perspectives shape the boundaries of their technical work. Ethnography provides a systematic means to perform the social inquiry necessary to characterize these boundaries, thereby adding value to the interdisciplinary nature of the engineering design process. However, ethnography requires a different paradigm to data collection and analysis, and introduces a level of subjectivity and uncertainty that engineering students are not familiar with. Conventional engineering curriculum does not adequately equip them in this regard. By the end of this presentation, participants/attendees will have a strategy and methods to introduce engineering students to ethnographic social inquiry techniques in a more technically familiar and structured way. This will lower the barrier in developing strategies to better integrate social sciences and engineering design-related coursework.

The findings report on an engineering project focused on improving electricity and water access in an Indigenous context. The design process adopted a mixed methods approach to characterize the design process requirements, participants, and stakeholders. In particular, two approaches found to be effective strategies for analysis of collected data will be focused on. The first is a statistical characterization of information saturation and its ramifications in qualitative data collection. The second is the use of causal diagrams to characterize the collected data in a way that enables situating the design process in the larger community context. The use of these approaches enabled the designers to better handle uncertainty in the design process, and to situate their work in the larger social context of the community for a consultative process focused on collaboration.

Takeaways:

- If you are an engineering educator, and are trying to find a way to incorporate the non-technical aspects of engineering into the design process, this session provides two tools and techniques that can help.
- One tool can help the student-designer better understand the limitations of engineering in a social context, and what leverage points they have in the design, while also acknowledge that factors are beyond their control.
- The second is a mathematical way to introduce students to the idea that detailed data collection, even for a small set, can reveal a lot about a community or population. It also provides a rationale to counter the often repeated assertion that engineers should not attempt to conduct social inquiry through interviews because it is too resource intensive to conduct at scale.

References:

- Galvin, R., 2015, “How many interviews are enough? Do qualitative interviews in building energy research consumption research produce reliable knowledge”, Journal of Building Engineering, Vol. 1, pp. 2-12.
- Hartvigsson, E, et al. 2020, “tackling complexity and problem formulation in rural electrification through conceptual modelling in system dynamics”, Systems Research and Behavioral Science, vol. 37 (1), 141-153.
- A. Chattopadhyay, “Developing a contextualized design framework for rural electrical infrastructure”, Ph.D. dissertation, University of Illinois Urbana Champaign, 2024.

102b: Indigenous Learning Circles in STEM Education*

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

Vivian Dayeh, Biology, University of Waterloo

Brenda Lee, Physics and Astronomy, University of Waterloo

Savannah Sloat, Indigenous Science Initiatives, University of Waterloo

By recognizing and valuing Indigenous pedagogies and methodologies, educators can provide a more holistic learning environment for students that supports the decolonization and Indigenization of the curriculum (Barkaskas & Gladwin, 2021). Indigenous talking Circles are safe, supportive environments where relationships are cultivated, and people can establish connections with other Circle members (Brown & Di Lallo, 2020). Although the practice of talking Circles in education has grown in recent years (Barkaskas & Gladwin, 202; Hanson & Danyluk, 2022), there are fewer examples of its practice in STEM education.

This session will describe a CTE LITE Seed Grant study to determine whether the addition of Indigenous Learning Circles to a course affects students' performance on course concepts and fosters a sense of community in comparison to courses without Learning Circles. Learning Circles were implemented in a third-year biology course, where students reflected on their learning by completing a One Minute Paper activity. Students then formed Learning Circles to reflect on course concepts that they may have found to be challenging. Learning Circles were also implemented in a first-year physics course during tutorials where they shared their problem-solving approach as they worked on physics problems.

As a part of this study, each cohort was asked to complete a survey reflecting the impact of the Learning Circles on their learning of course concepts and building a sense of community. Survey results were strongly supportive that Learning Circles positively impacted their ability to apply course concepts and establish a sense of community with their peers. Presenters will also share 'lessons learned' and experiences of Learning Circles within their courses.

Takeaways:

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

- Appreciate the variety of ways Learning Circles can be implemented in courses
- Initiate efforts to incorporate Learning Circles in their courses

References:

- Barkaskas, P., & Gladwin, D. (2021). Pedagogical Talking Circles: Decolonizing Education Through Relational Indigenous Frameworks. Journal of Teaching and Learning, 15, 20-38.
- Brown, M., & Di Lallo, S. (2020). Talking Circles: A Culturally Responsive Evaluation Practice. American Journal of Evaluation, 41, 367-383.
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102c: The State of Indigenization in STEM Education: An Environmental Scan of Canada's Leading Research Universities (the U15)*

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

Naomi Paul, Systems Design Engineering, University of Waterloo

Mary Robinson, Dean of Engineering Office, University of Waterloo

John Johnston, Earth Sciences, University of Waterloo

Brian Ingalls, Applied Mathematics, University of Waterloo

Andrew Beltaos, Mathematics, University of Waterloo

Indigenous knowledge is place-based and is rooted in the natural environment and traditional territory of each community. Therefore, Indigenization efforts should be locally-focused and not simply copied from university to university. We may learn from others, but, contrary to the goal of finding a single 'universal' answer, we must respect the specific location in which Indigenous and university communities reside.

Following the 2015 release of the Truth and Reconciliation Commission's Calls to Action, each member of the U15 (a Canadian association of fifteen leading research universities) has developed a strategic plan with respect to Decolonization, Indigenization, and Reconciliation. Understanding which of these initiatives engage with Indigenization and Decolonization content and methods allows for universities, on a national level, to take inspiration from these efforts.

As part of our Learning Innovation and Teaching Enhancement (LITE) Seed grant, we conducted an environmental scan, with emphasis on STEM faculties, to determine what initiatives have been made towards achieving the goals of Indigenization and Decolonization. This scan includes, for each U15 university, the strategic plan, the official website, and some grey literature posted in news channels about their efforts. Our scan of Indigenization in STEM identified three overarching themes in the strategic visions across the U15: (1) developing and implementing Indigenous Knowledges in curricula; (2) recruiting Indigenous students, staff, and faculty; and (3) supporting Indigenous students and staff to ensure they can be successful. Some limitations across the U15 include a lack of courses in STEM fields that discuss Indigenous Knowledge, and a lack of resources that support and sustain staff and faculty in developing and/or implementing Indigenous Knowledge into the curriculum.

This environmental scan may provide examples of Indigenization efforts for use at other universities, with potential modifications, accounting for the specific situation, community, and place.

Takeaways:

- Be inspired by what U15 universities are doing to Indigenize and Decolonize their practices.
- Recognize the importance of connection to community and place when working to Indigenize and Decolonize education.

References:

- Seniuk Cicek, J., Steele, A., Gauthier, S., Adobea Mante, A., Wolf, P., Robinson, M., & Mattucci, S. (2021). Indigenizing Engineering education in Canada: critically considered. Teaching in Higher Education, 26(7–8), 1038–1059. https://doi.org/10.1080/13562517.2021.1935847
- Gaudry, A., & Lorenz, D. (2018). Indigenization as inclusion, reconciliation, and decolonization: navigating the different visions for indigenizing the Canadian Academy. AlterNative: An International Journal of Indigenous Peoples, 14(3), 218-227. https://doi.org/10.1177/1177180118785382

Session 103: Presentations - Active Learning

103a: Assessing Student Behaviour During Active-Learning Activities for Improved Student Outcomes*

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

Robert Hill, Physics and Astronomy, University of Waterloo

Laura Ingram, Chemistry, University of Waterloo

Kristin Wilson, Centre for Extended Learning, University of Waterloo

Megan McCarthy, Psychology, University of Waterloo

Jason Thompson, Centre for Teaching Excellence, University of Waterloo

The success and impact of active-learning (AL) strategies in the classroom may depend heavily on how students perceive and engage in these activities. In high-enrollment classes, without direct observation, it can be particularly difficult to assess whether students are engaging as the instructor intended. However, recent studies assessing the effectiveness of AL in live teaching contexts focus on measurement of cognitive learning or student reflections using surveys and do not include behavioral observation (Nguyen 2021; Winkler 2019; Hodgson 2013; McClanahan 2002; Autin 2013). To investigate student engagement and disengagement behavior during AL, we have designed and implemented a novel observational research study conducted in two large first-year blended STEM courses. Student engagement and disengagement behaviours were tracked by 6 trained observers using a strategically designed rubric that operationalized engagement and disengagement behaviours. Inter-rater reliability, calculated on the observation data, showed excellent agreement across observers (Kappa = 0.7-0.9) providing evidence of consistency, objectivity, and consensus in our coding. We also surveyed students early and late in the term to measure any shifts in beliefs about learning and surveyed students about their experiences after observed classes to measure the extent of their understanding value in the activities.

We will discuss our results that show fluctuations in students' engagement and disengagement behaviours over the duration of a class, and across active-learning exercises relative to periods of passive learning through more traditional lecturing. We will also discuss our survey results, which show a dissonance between students' beliefs and preferences, where they endorse and value active learning in the classroom, but may still most enjoy passive learning (traditional lecture). Attendees will also come away from our session with some observational methods and resources they can use in their classrooms to better understand student engagement and disengagement.

Takeaways:

Attendees will come away from our session with:

- A method and tool for observing engagement of students in the classroom during active-learning activities, which can be used to assess the level of engagement as a function of time on task, instructor activity and active-learning activity.
- Insights from our observational data that can be used to improve active learning activities and better engage students and promote better learning outcomes

References:

- Nguyen, K.A., Borrego, M., Finelli, C.J., DeMonbrun, M., Crockett, C., Tharayil, S., Shekhar, P., Waters C., and Rosenberg, R. 2021. "Instructor strategies to aid implementation of active learning: a systematic literature review." International Journal of STEM Education 1-18

- Winkler, I., Rybnikova, I. 2019. “Student resistance in the classroom—Functional instrumentalist, critical-emancipatory and critical functional conceptualisations.” Higher Education Quarterly, Wiley 521-538.
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103b: Using Design Thinking and Industry Collaborations to Develop Students' Problem-Solving and Empathy Skills

Faraj Haddad, Western University

Sarah McLean, Western University

Supporting students to cultivate creative-problem solving skills and empathy during their undergraduate degree is key to the development of future leaders and professionals that can tackle the complex challenges facing today's society. Authentic assessments can support students in developing these crucial skills (1). In a fourth-year blended medical sciences course, we tasked students with designing a hypothetical intervention for an inflammatory disease. During the initial offerings of this assignment, students developed interventions that were scientifically sound but lacking in the patient/user perspective.

To address these issues, we implemented two innovations to foster students' empathy and creativity: a Design Thinking framework and a partnership with a scientific consulting firm. Design thinking is a human-centred creative problem-solving approach, characterized by the stages of empathizing, defining the problem, ideating, prototyping, and testing the intervention (2). The design Thinking framework helped the students empathize and appreciate the patient perspective from a more holistic lens.

Our partnership with a scientific consulting firm, SixSense Inc included the development of an authentic assessment and providing students with feedback on their Design Thinking project. The assessment was modeled closely from a task that is regularly performed in the consultants' line of work. In addition, as experts in the healthcare consulting field, SixSense partners hosted virtual consultation sessions to provide constructive feedback on the students' Design Thinking projects.

We have discovered that this approach has created more holistically-minded researchers. The approach can be adapted in other fields and programs to develop the next generation of empathetic creative problem-solvers.

Takeaways:

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

- Describe the Design Thinking framework and how it can be used to foster problem-solving and empathy skills
- Explore new ways of collaborating with external partners (e.g., industry) to create authentic learning experiences for students

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103c: Revisiting the Triple Jump Assessment: A Strategy for Engaging with Change

Barb Bloemhof, Economics, University of Waterloo

In bringing resourcefulness and flexibility to instructional practice, revisiting and adapting established assessments is a sound idea. One underutilized assessment, the Triple Jump, assesses learner's ability to solve problems, to direct their own learning, to apply knowledge in authentic settings (as distinct from rudimentary recall), and to identify areas for further development of knowledge and proficiencies (Powles et al. 1981, 74, see also Barrows 1996, 5-6). The Triple Jump dates from the late 1970s and was subsequently operationalized for large classes (over 300 students; see Kustra 2007), by structuring it as a paper test over two classes, with students collaborating to conduct research inspired by the first day's trigger between classes. Relaxing the original single-day format economizes on resource use, dramatically increasing the number of students who can take the assessment; using carbon paper to duplicate the learner's first-day work provides an accurate record of what they intended to research for the second day; and collaboration is encouraged between classes. This newer experience nonetheless appears to have strong fidelity to the original assessment from the late 1970s.

The session will illustrate how the Triple Jump assessment embodies reflection, feedback and collaborative/cooperative relationships, which Summerlee (2023, xii) characterizes as essential for effective deep learning. Participants will see how to guide learners to understand new phenomena encountered in the assessment, mimicking the process of academic knowledge creation (Nastos and Rangachari 2016, 2). Rather than single-right answers, the centrality of self-direction and critical questioning in the assessment make room for agency and curiosity, which learners experience as a novel and fun challenge. Participants will leave knowing how to adapt and use the Triple Jump in their subject matter to help build students' resilience to changing information and uncertainty.

Takeaways:

- Although not a new assessment, the Triple Jump is underused relative to its potential across the academy
- Unlike most assessments that privilege a single right answer, this assessment involves using context and refinement of understanding through research done during the assessment
- Students experience this assessment as lower stress, engaging and fun.

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Session 104: Presentations - AI in Health Education

104a: AI-Generated Virtual Standardized Patients: Transforming Healthcare Training*

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

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Tom McFarlane, School of Pharmacy, University of Waterloo

Paul Gege, Geeg Ltd

Session Description: In healthcare education, standardized patients —human actors trained to portray patients—have long been a cornerstone of student training, offering invaluable opportunities for learners to practice clinical and communication skills. However, the introduction of artificial intelligence (AI) and virtual reality (VR) is revolutionizing this domain, allowing the creation of AI-generated virtual standardized patients (VSPs). Virtual standardized patients are a valuable adjunct to traditional training with human patients. While human interactions provide nuanced, real-world complexity and variability, AI systems offer consistency, inclusivity, and tailored feedback that can be challenging to achieve in live settings.

This session explores developing and implementing a virtual standardized patient platform at the School of Pharmacy. Drawing on a combination of theory, research, and practice, this presentation will outline how AI and VR technologies were incorporated to create interactive, lifelike patient simulations. Key topics will include how virtual standardized patients (VSPs) can help students practice diagnosing conditions, communicating effectively with patients, and adapting to different situations—all in a safe, low-pressure environment.

This session fits the theme of Disruption and Uncertainty as Drivers for Change by showing how technologies like AI and VR assist healthcare education. Virtual standardized patients address challenges like limited access to human actors and variability in training, offering consistent and inclusive learning opportunities. We're preparing future healthcare professionals to adapt to an ever-changing world by embracing these innovations.

Takeaways:

- Learn how AI and VR are used in healthcare education to create virtual patients that help students practice skills like diagnosing and communicating in a safe and supportive setting.
- Find out how the platform was designed, including the research and testing, and how it was used to design lifelike simulations for students.
- Discover strategies to use virtual patients in healthcare curricula to engage students and prepare them for real-world challenges.

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104b: Reimagining Healthcare Education: How AI-Driven Virtual Patients Are Transforming Clinical Training*

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

Jeff Nagge, School of Pharmacy, University of Waterloo

Brianna Bennett, Centre for Teaching Excellence, University of Waterloo

Cynthia Richard, School of Pharmacy, University of Waterloo

Fuqian Tang, WatSPEED, University of Waterloo

Pharmacists are increasingly responsible for managing oral anticoagulation therapy, a role that demands advanced clinical decision-making skills. To address this need, the Management of Oral Anticoagulation Therapy (MOAT) course at the University of Waterloo initially combined online modules with in-person clinical training. Due to logistical challenges, MOAT transitioned in 2018 to an entirely virtual format featuring AI-driven simulations designed to replicate hands-on learning. Our presentation will discuss how we came to determine that AI-driven simulations substantially improved learners' confidence in managing anticoagulation therapy, allowing us to fully transition from in-person clinical visits to a scalable, virtual model.

This study, funded through two UWaterloo LITE grants, examined two questions: (1) Can an AI-enabled virtual clinic increase learners' confidence in providing anticoagulation services? (2) Were learners satisfied with the fully online clinical training model? Between 2018 and mid-2024, 287 participants completed the MOAT course and provided survey data at three time points: baseline, after completing online modules, and following AI-based simulations. Confidence in providing anticoagulation services was rated on a 5-point Likert scale. Mean confidence increased significantly from 1.92±0.91 at baseline to 3.85±0.65 after completing online modules ($p<0.0001$; large effect size) and rose further to 4.24±0.52 following the virtual clinic ($p<0.0001$; moderate effect size). The simulations were ranked as the most valuable course component by 69% of participants. Qualitative feedback emphasized how the virtual patient encounters reinforced theoretical knowledge, although some technical issues were reported.

Overall, AI-driven simulations substantially improved learners' confidence in managing anticoagulation therapy, allowing the MOAT course to fully transition from in-person clinical visits to a scalable, virtual model. Beyond pharmacy, this approach may benefit other health and professional education contexts that rely on experiential training, providing accessible, resource-efficient learning that can be adapted for diverse curricula.

Takeaways:

- AI-driven virtual simulations significantly enhance learner confidence: The MOAT course demonstrates that AI-enabled virtual clinics can replicate hands-on clinical training, leading to substantial increases in learner confidence in managing complex therapies like anticoagulation.
- Scalable, resource-efficient training is achievable: Transitioning from in-person clinical visits to a fully virtual model is feasible, providing a scalable and accessible approach to experiential learning in healthcare and professional education.
- Virtual patients reinforce theoretical knowledge effectively: AI-powered patient encounters not only reinforce theoretical concepts but also offer a safe environment for learners to practice decision-making, making this approach adaptable for diverse curricula beyond pharmacy education.

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104c: Comparison of Generative Artificial Intelligence Use in Health-Related Employment Sectors and in Faculty of Health Classrooms at the University of Waterloo: A Methodology Overview*

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

Laura Williams, Health, University of Waterloo

Michelle Ogrodnik, Kinesiology and Health Sciences, University of Waterloo

Various forms of artificial intelligence (AI) have been in use for decades for individual use and across industries, including healthcare and education (Akgun & Greenhow, 2022; Chan & Zhou, 2023). However, generative AI (which can produce new content; GenAI) has become a major area of interest since the release of ChatGPT in November 2022 (Chan & Zhou, 2024; Jindal et al., 2024). In academia, many educators want to know how to best prepare students for their professional pursuits upon graduation that may require them to use GenAI tools. However, within the Faculty of Health (FOH), there is limited evidence on how, if at all, students are currently expected to use GenAI in their volunteer, cooperative, or employment positions. There is also limited data on how, if at all, GenAI tools are being currently taught or used by instructors across the Faculty and within relevant employment related sectors. As such, this project aims to collect quantitative and qualitative data regarding use of GenAI from students and instructors within the FOH and individuals employed in health-related employment sectors. Supported by a LITE grant, this study will provide insights into different usages of GenAI within and between these groups, identify potential gaps in student education, and provide guidance on how to consider GenAI in future teaching. By elucidating GenAI's current implementation methods in health-related employment sectors, we can provide better strategies for incorporation of GenAI into FOH classrooms and assessments (for interested instructors) to better prepare students for their cooperative work placements, volunteer positions, and their employment beyond the University of Waterloo.

Takeaways:

- Describe the current methodology being used to collect quantitative and qualitative data regarding use of GenAI from students and instructors within the FOH and individuals employed in health-related employment sectors, which may be of relevance to other faculties within and beyond the University of Waterloo.

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Session 105: Presentations - Innovative Teaching Methods

105a: An Interdisciplinary Design Activity in Technology for Healthy Aging

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Nancy Nelson, Dean of Engineering Office, University of Waterloo

Marium Kirmani, StarterHacks

Canada's aging population create significant challenges in health care, increasing the demand for innovative tech-based solutions [1][2]. This requires interdisciplinary thinking, but in the current university environment, there are few opportunities for students to work on real-world problems in interdisciplinary teams. This talk describes an extra-curricular, interdisciplinary hackathon designed to stimulate student interest in health technology. This event was designed by a cross-faculty team from Engineering and Health, with a real-world problem identified by a community stakeholder.

Hackathons provide exciting, social environments for students to collaborate, interact with stakeholders, and solve real-world problems; and have been shown to enhance motivation and foster effective interdisciplinary collaboration [3]- [5]. This event bridged the gap between academic knowledge and practical application, encouraging students to develop innovative solutions for real-world challenges in elder care.

Offered in February 2025, the Health Tech Innovation Challenge connected undergraduate students in engineering and health with experts and stakeholders in geriatric health care. In total, 62 students participated (51 from engineering, and 11 from health) in 13 teams, with 5 teams composed of students from both health and engineering. Experts and stakeholders introduced the problem space and provided guidance to the teams of students throughout the 20-hour event. In addition to developing a working prototype solution, student teams presented an overview of the impact, safety, ethical considerations, and feasibility of their prototype to panels of judges at the end of the event.

This presentation discusses the event, with a particular focus on the structures and supports which facilitated interdisciplinary teams of students. These included a discussion of interdisciplinary problem-solving approaches with participants, connections with real-world stakeholders throughout the event, instructional modules on technologies participants could use in their solutions, collaboration and teamwork supports, and project assessment rubrics.

Takeaways:

- Lessons learned from planning and implementing an interdisciplinary event
- Structures/supports which were effective at facilitating interdisciplinary student collaboration
- Motivate participants to think bigger than their disciplinary bounds, and to seek out opportunities for inter-faculty cooperation

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105b: Improving Immersive Learning: Insights from Virtual Reality in the Classroom over a 12-Week Term*

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

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Introduction: Virtual reality (VR) head-mounted displays (HMDs) are emerging as transformative tools in higher education, offering immersive and interactive learning experiences. However, much of the current research focuses on small-scale integration or pilot studies with only a few HMDs, resulting in a gap in understanding how VR can be effectively integrated into broader classroom settings for multiple students across an entire term. This presentation, based on research funded by a LITE Seed Grant and accepted for publication at the upcoming international Computer Human Interaction (CHI) conference, explores the logistical, pedagogical, and practical challenges of using VR headsets (HMDs) over a 12- week term.

Methodology: Our mixed-methods study examined the use of 30 VR HMDs by 55 students in a design class at the Stratford School of Interaction Design and Business at the University of Waterloo. Students used the VR equipment both in class and at home for assignments, sharing the HMDs with a partner. Throughout the term, we administered five custom questionnaires and we conducted in-class observations and interviews to assess student and instructor perspectives on VR in the classroom. Quantitative responses were analyzed using statistical measures, and qualitative responses were analyzed with Reflexive Thematic Analysis to identify key themes and trends.

Learning Outcomes: While our results showed very positive student perceptions and engagement, our long-term deployment also revealed important pedagogical challenges and opportunities. By the end of this session, attendees will learn about the strategies faculty and students employed when facing technological hurdles, varied experiences with cybersickness, the need for alternative assignments, as well as the creative and collaborative environment students developed over time. The presentation will conclude with a brief overview of current initiatives at the Stratford School, which now includes 60 HMDs.

Takeaways:

- Virtual reality technologies present exciting opportunities for design students to consider the embodied and spatial aspects of their design.
- Barriers that students face (like discomfort or cybersickness) must be addressed. Alternative assignments is perhaps the simplest method, but other mitigation strategies are necessary as well.
- Workload for instructors is high, requiring increased attention to logistical and practical factors.

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105c: Friendly Competitions of Teaching: Measuring Instructor Effectiveness by Student Learning through "Teach-Offs"

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Diana Skrzydlo, Statistics and Actuarial Science, University of Waterloo

The Math Prof Teach-Offs began in Winter 2023 as a way to challenge how teaching is evaluated, by bringing together students and willing instructors in an experimental event. Students were given a surprise topic and a short quiz to measure their prior knowledge, and then split randomly into three groups. Each was taught a one-hour lesson by an award-winning instructor, and then students were tested again with a similar but not identical quiz. The "winner" of the Teach-Off was the instructor whose students improved their scores the most.

From the instructor side, the Teach-Off is a collection of uncertainties – instructors receive the topic only a week before, and have no idea who their students are, how many of them there will be, or their level of background knowledge. They need to practice resilience by adapting their approaches to the audience in front of them. From a student perspective, since the competitive aspect of the Teach-Off focuses on student learning outcomes, the shift from teacher-centred to student-centred education can be seen as a disruption to evaluation methods that prioritize student engagement and understanding.

Since the first one in 2023, we have run 5 Teach-Offs, and we would love to share what it has taught us about evaluating teaching in an alternative way, by directly measuring learning. Obviously the learning and teaching in a one-hour lesson is not the same as over a full course, but are there takeaways that can be used in our classrooms as well? Furthermore, can we make people think about how to change the way they might evaluate teaching themselves?

Takeaways:

- Consider using a pre- and post-quiz in your courses to measure student learning and evaluate your own teaching. Bonus – it also makes students' growth and learning visible to them.
- Strategies for teaching a successful and memorable one-off lecture may also be helpful in a full course.
- Evaluating teaching is complex but an important dimension is how much students actually learned.

References:

- Backgrounder: Defining Teaching Effectiveness, UWaterloo's CTAPT Committee, 2018 (and sources therein)

Session 106: Presentations - Technology

106a: First Few Steps to Consider when Integrating Generative Artificial Intelligence into a Course

Otto Yung, University of Toronto

Given the abundance of tools available to students and educators, it is vital to promote the ethical use of GenAI tools while critically evaluating how it can be incorporated into assessment activities. The AI Assessment Scale (AIAS) published by Perkins et al. (2024) has been referred to as a good starting point as a framework for ethical integration. Educators should also be aware of various complexities noted by Lim et al. (2023) with four "paradoxes" of GenAI in higher education that must be considered when planning for integration.

The session will encourage conversations among educators about what tactics can be used to effectively leverage GenAI technology. There are many different options of GenAI technology that are available and we will cover the notion of a protected platform (e.g., Microsoft Copilot – Enterprise Edition) versus an unprotected platform that should be considered before submitting prompts.

I found The STRIVE model published by Anselmo et al. (2024) as a good resource to reflect on my GenAI experience to further promote ethical, responsible, and beneficial use. Lastly, I found that many educators and students focus on leveraging GenAI to create work whereas experiments performed by Kumar et al. (2024) show that a Large Language Model (LLM) designed to facilitate self reflection after completing an assignment actually increased students' confidence which led to better performance in subsequent exams. This is an innovative approach to leveraging AI for education.

I will conclude by sharing my reflection on using GenAI. What did I discover? How can I leverage GenAI in the future and make it useful for my teaching? What I am still curious about in utilizing GenAI?

Takeaways:

- Participants will be aware of frameworks that will guide them to critically assess if GenAI should and could be integrated into their course.
- Participants will be provided with ideas and techniques to continually leverage GenAI to keep courses current (e.g., writing effective AI prompts through reflective questioning to efficiently craft new course outlines, sample practice questions, sample assignments, study guides, and other course assessments). Interested participants will receive tips about illustrative steps to improve their AI prompts to achieve pedagogical objectives.
- Participants will have an appreciation of where to start the process in experimenting with GenAI to create new ideas and resources to better deliver a course to enhance student engagement. Participants will learn techniques to empower themselves so as to tap into their creativity to generate educational content.
- Participants will learn some key points to create effective prompts for a more desirable outcome from GenAI technology.

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- The AI Pedagogy Project was created by the metaLAB at Harvard University and the Berkman Klein Centre for Internet & Society. There are three parts to this guide: i) Part 1: AI Starter; ii) Part 2: LLM Tutorial, and iii) Part 3: Resources. There is also a collection of curated assignments that integrate AI tools from educators around the world. https://aipedagogy.org/guide/
- The Higher Education Strategy Associates (HESA) launched the "AI Observatory" that acts as a Canadian clearinghouse for policies and guidelines with respect to AI. There are roundtable meetings that consist of 100+ participants mainly comprised of administrators and instructors across Canada. https://higheredstrategy.com/ai-observatory-home/

106b: Harnessing Technology to Measure Attentional Engagement and Mind Wandering Across Learning Environments

Sarah Allen, Western University

Sean McWatt, Western University

Student's engagement with educational content and resources is the central component of any learning experience. This is captured by attentional engagement — the prolonged and intentional allocation of cognitive resources towards a task. Its counterpart, mind wandering, equally assesses if a learner is becoming disengaged when learning. High attentional engagement, or low mind wandering, leads to better learning outcomes. This project explored the measurement of attentional engagement and mind wandering using technologies such as fMRI, fNIRS, EEG, and gaze tracking. The focus was to assess the feasibility of these technologies for use in an environment where learning is actually occurring — whether it be in a classroom, lecture hall, virtual reality, dissection laboratory, or using asynchronous learning resources online. As such technologies become more portable and affordable, these measurements can be used in these authentic learning environments to assess the effectiveness of teaching tools and approaches. As the learning environment continues to evolve to include the use of artificial intelligence, virtual reality, and increased reliance on remote learning, it is essential to capture objective data about the student experience. In a thorough review of the literature, this work assesses the merit of each of these technologies across a variety of learning environments. The results will be discussed to inform the establishment of a technology-based approach to collect objective data on engagement in any learning environment.

Takeaways:

- Technology can be integrated into learning environments, allowing attentional engagement to be measured.
- fNIRS, EEG, gaze tracking, and other measurement such as pulse and dermal sensors have varying uses and effectiveness across learning environments.
- Many of these tools are cost effective and minimally invasive to the learning process.

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106c: To Repudiate or Integrate? (Re)Situating Large Language Models as Objects of Rhetorical Study for Academic Research

Fatima Zohra, English Language and Literature, University of Waterloo

Perhaps one of the most increasingly debated issues in academia since the launch of OpenAI's Large Language Model (LLM), ChatGPT, in 2022 has been whether academics – and institutions more broadly – should integrate such Generative AI (GenAI) models into teaching. While this question remains a controversial one, with multifaceted factors to consider such as data privacy and security, misinformation, biases, and of course, in the context of teaching and learning – academic integrity – GenAI models are becoming increasingly integrated across industries and sectors. Through the lens of computational rhetoric, this presentation examines how prompt engineering – that is, user prompting of LLMs – is a fundamentally rhetorical process (i.e., a persuasive one), making LLMs critical objects of study in and of themselves. When students can recognize how subtle changes in their prompts can generate highly varied responses, as this presentation demonstrates, they can become far more aware of how LLMs can serve as powerful weapons of information warfare that can result in widespread harm. Hence, this presentation employs a mixed methods approach which begins with a demonstration of how varied levels of "prompt tuning" can skew generated outputs in LLMs followed by a rhetorical analysis of the broader implications of such nuances in "research" generation – particularly how such manipulation of GenAI models (even inadvertently) can be detrimental for academic research and writing. Ultimately, this presentation underscores that the promise of GenAI to exponentially increase efficiency and scalability for optimal results across disciplines – including academic research – must be critically evaluated. While this has been echoed by algorithmic justice scholars, studies which examine GenAI through the lens of a human rhetor remain limited yet are integral for students' understanding of their own roles as potential users of such "intelligent" technologies.

Takeaways:

- Prompt engineering is a fundamentally rhetorical (i.e., persuasive) process in which users can (even inadvertently) manipulate Generative AI (GenAI) models to elicit desired responses, thereby resulting in a high risk of confirmation bias.
- Creating awareness of the perils of "prompt tuning" is critical for students' understanding of how Large Language Models (LLMs) can exacerbate existing social inequities through misleading and/or misconstrued academic "research."
- (Re)understanding prompt engineering through the lens of a human rhetor (i.e., user) is critical for students' understanding of their roles as potential users of Generative AI (GenAI) and the degree to which they want to interact with these technologies.

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Session 107: Workshop - Implementing a Stakeholder Café to Facilitate Student-Stakeholder Interactions*

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

Jenny Howcroft, Systems Design Engineering, University of Waterloo

Reem Roufail, Systems Design Engineering, University of Waterloo

Kate Mercer, Library, University of Waterloo

Andrew Atkinson, Systems Design Engineering, University of Waterloo

Providing students with meaningful and effective opportunities to engage with stakeholders is a challenge, especially in engineering [1,2]. Students struggle with goal setting, successfully engaging, and contextualizing conflicting and diverse insights from stakeholders [2]. The Stakeholder Café model supports effective student-stakeholder interactions [3-7]. It was implemented as the Biomedical Stakeholder Café in 2023 [3-4,7] and 2024 [5] and the Sustainability Stakeholder Café in 2024 [6] in the Faculty of Engineering at the University of Waterloo. During this workshop, attendees will be given the opportunity to reflect on their own curriculum and students needs related to stakeholder interactions within higher education and consider how the Stakeholder Café model could be implemented to advance student learning.

Intended Learning Outcomes:

- Understand the Stakeholder Café model for student-stakeholder interactions and associated implementation considerations.
- Examine the need for student-stakeholder interaction opportunities in their own programs.
- Create a plan for implementing the Stakeholder Café model as a curricular or extracurricular opportunity for their students.

Takeaways:

- The Stakeholder Cafe is an effective model for enabling student-stakeholder interactions as an extracurricular activity.
- The model has been successfully implemented in two forms with early evidence indicating that the model overcomes known barriers to student-stakeholder

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Session 108: Workshop - The Art of the Practice Space: Exploring Violence and Resistance in RF Kuang's Babel through a Dungeons and Dragons Style Role-Playing Campaign

Craig Fortier, Social Development Studies, University of Waterloo

Bronwyn Ellerby, Gender and Social Justice, University of Waterloo

Hannah Li, Social Development Studies, University of Waterloo

Alison Pham, Social Development Studies, University of Waterloo

This workshop will demonstrate the strengths of in-classroom practice spaces to explore and gain deeper understandings of challenging and controversial topics. The practice space used in this workshop is a format developed by Black feminists affiliated with the Allied Media Conference, an event that took place yearly in Detroit from 2000-2023. In this adaptation of the practice space, students from Dr. Fortier's SDS 441R/GSJ 473 course, will take participants on a journey through RF Kuang's bestselling historical fantasy book, Babel: Or the Necessity of Violence: An Arcane History of the Oxford Translators' Revolution, using a Dungeons & Dragons style mini campaign to investigate themes of anti-colonialism, violence and non-violence in revolutionary struggle, conflict in social movements, feminist political strategy, and other core concepts in the course. Participants in the workshop will be equipped with props, roles, and key information that will help guide them through the campaign in an effort to unpack the layers of political theory within Kuang's novel. This practice space can be adapted based on the size of the audience from as small as 4 participants to as large as 40 participants.

Takeaways:

- Creative ways to develop engaged learning activities within the classroom
- Developing immersive experiences that help to support students in discussing issues that can be challenging, disruptive, controversial, or cause conflict
- Using popular culture as an entry point to discussing issues of social justice

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Concurrent Sessions (200): Thursday, May 1 (11:40am – 12:40pm ET)

Session 201: Presentations - Open Educational Resources

201a: Open Educational Resource Implementation and Evaluation for SCORM Development in Recreation and Leisure Studies*

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

Brendan Riggin, Recreation and Leisure Studies, University of Waterloo

Brandon Dickson, Centre for Teaching Excellence, University of Waterloo; Balsillie School of International Affairs

Jasmine Nitsotolis, Western University

Donna Kotsopoulos, Western University

Boba Samuels, University of Toronto

Our presentation addresses the conference theme and uncertainty surrounding accessibility integration by responding to two challenges in higher education: the growing demand for accessible learning resources and the scarcity of Open Educational Resources (OERs). Focusing on a first-year course [REC 101], we developed a multimodal library of OERs to replace the traditional textbook. These resources—videos, podcasts, case studies, and voice-over presentations—offer diverse engagement opportunities, supporting UDL's commitment to multiple means of representation, action, and engagement.

This forms the basis of our engagement with UDL, which offers a research-based approach to accessibility as it provides various opportunities for representation, action, and engagement so that all types of learners can successfully participate in the learning (Griful-Freixenet et al., 2017). While UDL initially targeted accessibility for students with disabilities, it has evolved into a framework that supports all learners (Bracken & Novak, 2019; Cumming & Rose, 2021). This disruption to traditional course delivery fosters equity and accessibility, reducing financial barriers for students while equipping instructors with adaptable resources. These OERs enhance student learning and can create scalable models for broader adoption across academic disciplines.

In this research-informed, practice-oriented presentation, we present the challenges encountered, including resource selection, OER substitution, and maintaining flexibility for wider adoption. We will share findings from initial evaluations using learning analytics and student reflections and conclude with practical recommendations and reflections on developing the SCORM package. By exploring these challenges and solutions, we aim to inspire greater uptake of OERs, driving accessibility and inclusivity in higher education.

Learning outcomes:

1) Identify the principles of UDL and describe how OERs can be leveraged to create inclusive and accessible learning environments.
2) Evaluate the effectiveness of OERs in enhancing student engagement and learning in a first-year RLS course, with implications for broader educational contexts.

Takeaways:

- OER selection and implementation through development of a SCORM can replace a traditional textbook
- OER integration may be better situated to supporting UDL integration than traditional course materials

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201b: Engaging Student Partners in Open Educational Resource Development to Advance Pathology Education in the Post-COVID Era

Ankit Ray, Western University

Luis Limo, Western University

Kevin Vytlingam, Western University

Jina Kum, Western University

The COVID-19 pandemic forced a sudden pivot to online learning. In pathology education, open educational resources (OERs) to support student learning with connections to clinical contexts were lacking. Therefore, our team created clinical case studies that were shared as OERs to reduce inequitable access to education. To ensure the OERs would be relevant to student needs, we recruited undergraduate and graduate students involved in the course as co-creators (Duea et al., 2022). The impact of student partnerships was analyzed through collaborative autoethnography (CAE), a qualitative research approach that allows researchers to gather insight from their personal and shared experiences through group discussion.

Our CAE revealed that collaborative OER creation provided a fostering environment for the team to diversify their perspectives regarding educational content and delivery. For instance, developing methods to engage learners and reduce learning barriers. Moreover, implementing student partnerships resulted in diverse learner-centred considerations advancing diversity and inclusion, such as increasing demographic representation in the case studies and accommodating different learning styles. On the flip side, we observed that power dynamics within our team impacted the students' ability to contribute and provide feedback. To address these challenges, we outline methods to facilitate student involvement, such as providing necessary training, defining common goals, and clearly outlining student expectations. Additionally, incorporating institutional or scholarly recognition may further incentivize students as co- creators of OERs.

By creating educational resources designed to be openly accessible, we aim to reduce inequitable access to education. Our session will provide insights into the impact of incorporating students as partners and provide attendees with strategies to foster meaningful student involvement, enhance equity, diversity, and inclusion, and ultimately, improve the quality and accessibility of educational resources in higher education.

Takeaways:

- Addressing power dynamics and skill gaps by providing structured training, clearly defining student roles, and offering institutional recognition could help students contribute their unique perspectives to OER development.
- Student partnership in OER development can improve pedagogy and inclusion by integrating diverse perspectives and learning styles to enhance accessibility and representation.

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201c: Open Education Resource (OER) as an Effective Pedagogy Strategy to Teaching Engineering Laboratory under Uncertainty and Disruption*

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

John Zhang, Chemical Engineering, University of Waterloo

Jeff Gostick, Chemical Engineering, University of Waterloo

Rachael Verbruggen, Centre for Extended Learning, University of Waterloo

Mario Ioannidis, Chemical Engineering, University of Waterloo

The ever-evolving engineering laboratory pedagogy and advance in technologies have spurred the adoption of more inclusive and sustainable pedagogical approaches. New technologies such as virtual reality (VR), augmented reality (AR), overlay simulation, and AI-based laboratory are enabling time, material, and resource efficient exploration and implementation of engineering laboratories, particularly for complex phenomena and systems where traditional hands-on laboratories are restricted and unsustainable. We present an open education resource (OER) that incorporates not only interactive laboratory learning elements such as VR/AR, lab-based video and animation, high-fidelity Python simulation, but also a theoretical framework that connects all the pieces together. The online delivery of the OER provides an undisruptive, immersive, and efficient learning setting, enabling students to choose their own approach to learning the relevant theories, lab operation, and complex lab and process design according to their personal pace and learning need. The OER also integrates authentic Python simulation and 3D visualization of various process scenarios to generate virtual process design and operations, thus enhancing student ability to better design and conduct hands-on lab experiments. More importantly, the integrative design of the OER provides metacognitive scaffolding and experimental support for experiential laboratory learning, promoting in-depth understanding of challenging concepts and the connections between underlying theories, lab experience, and practical engineering design. With an embedded outcomes-based pedagogical framework in place for instructors and self-directed students to evaluate laboratory learning in an experiential learning setting, the OER has been implemented in senior chemical engineering lab courses, primarily structured around project-based laboratories that emphasize engineering design. The pedagogical approach aims to promote deep learning and practical experience in engineering lab courses. The effects of the OER on student perceptions of learning such as effectiveness, self-efficacy, and advanced learning outcomes are currently being assessed and will be shared in the presentation.

Takeaways:

- Open education resource (OER), sustainable laboratory pedagogy, virtual reality, Python simulation, project-based laboratory, advanced learning outcomes.

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Session 202: Presentations - Community Engagement

202a: Learning from Grassroots Organizations: Responding to Disruption and Driving Social Change

Stuart Schussler, Knowledge Integration, University of Waterloo

Social movements both cause disruption and respond to it, and member-led community organizations are their driving force. They are the frontline responders when crises erupt, sometimes even turning these into opportunities to create novel decision-making processes or forms of mutual aid. Yet the very characteristics that create such dynamism – grassroots organizations' inclusive and non-hierarchical membership, their spur of the moment responsiveness – also make them into "messy" spaces when compared to formalized organizations. As a result, universities seldom engage community organizations as viable sites of service learning. Meanwhile, there are ecological, financial, migratory, and political crises exacerbating each other – a state of "polycrisis." As this polycrisis continues to unfold, it is vitally important that the next generation of change-makers know how to engage community spaces. How can university faculty and staff expose students to grassroots organizations, in a way that adds capacity rather than draining it?

Drawing on interviews with university faculty and staff across Canada, the US and Ireland, this presentation offers educators an array of models to choose from, plus best practices for this difficult work. Teachers may wish to connect with grassroots organizations by inviting them into the classroom to provide case studies relating to otherwise-conceptual material; or they may invite students to do extracurricular volunteering with organizations, supervising them as they integrate their experiences into capstone assignments. Students from academic backgrounds as diverse as social sciences, arts, and engineering can all benefit from turning ideas into actionable projects within community spaces, gaining important para-academic skills in community consultation and knowledge mobilization. To make this possible, it is imperative that teachers engage in long-term trust building with grassroots organizations, thoroughly orient students, and adopt a flexible, can-do disposition when engaging administrators. The research thereby offers useful lessons both for university faculty and staff looking to expose their students to the sorts of grassroots organizations that make history, as well as community members looking to hold institutional actors accountable while also needing all the support they can get.

Takeaways:

To successfully and responsibly connect students with grassroots organizations, educators should:

- Build trust. Consistently visit the organization over a period of months, share what skills and resources you have to offer, and follow through in providing these. Show the organization that you understand their struggle and that you keep your word.
- Creatively engage your institution. Administrations are risk-adverse and budgets are tight, so adopt a flexible, inventive, don't-take-no-for-an-answer attitude as you secure institutional approval for your unorthodox dream of supporting a grassroots organization.
- Orient students. To prevent your students from being a drain on the organization's scarce time and energy, put in extra effort to orient them about its history, mission, political culture, and the know-how they'll be using. Most importantly, get them excited so that they show up enthusiastically!

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202b: Leading Through Disruption: Harnessing Community-Engaged Learning to Empower Racialized Students

Amrutha Elanko, Western University

Sarah McLean, Western University

How can disruption fuel leadership growth and systemic change for racialized students? This session explores the potential of Community-Engaged Learning (CEL) as both a catalyst for leadership development and a space where systemic inequities persist. While CEL immerses students in real-world challenges that foster adaptability, critical thinking, and collaboration, racialized students encounter additional layers of uncertainty and disruption that shape their leadership trajectories. However, the impact of CEL is not always straightforward—does it disrupt systemic barriers, or does it inadvertently reinforce them?

This study, grounded in Critical Race Theory (CRT) (Crenshaw, 1995), examines how CEL shapes racialized students' leadership development, aspirations, and access to mentorship and institutional support. CRT is used to analyze both pre-existing structural barriers that racialized students navigate before engaging in CEL and the ways in which CEL itself disrupts, diminishes, or exacerbates these inequities. By capturing student narratives through focus groups and reflective essays, this research reveals how participants redefine leadership as relational and community-driven while also confronting challenges such as inconsistent mentorship, limited representation of diverse role models, and institutional constraints.

These findings demonstrate that uncertainty in CEL is a double-edged sword—while it has the potential to foster leadership growth, it also mirrors broader systemic inequities that must be actively addressed.

This session connects to the conference theme by demonstrating how CEL intentionally harnesses disruption as a leadership development tool while also revealing the uncertainties racialized students face within these spaces. By critically examining this tension, attendees will gain insights into how uncertainty can be transformed from a systemic barrier into a catalyst for leadership equity and institutional change. Attendees will leave with practical strategies for designing CEL experiences that intentionally center equity and leadership development, ensuring that disruption serves as a catalyst for empowerment rather than a barrier to access.

Takeaways:

- Transforming Leadership Development Through CEL: Educators will learn how to design CEL experiences that challenge exclusionary leadership models and promote relational, community-driven leadership that reflects the lived realities of racialized students.
- Addressing Systemic Barriers: This session will highlight key challenges racialized students face in CEL, such as inconsistent mentorship and limited representation of diverse role models, and will provide practical, evidence-based strategies for addressing these barriers.
- Harnessing Disruption for Equity: Attendees will explore how uncertainty within CEL can either perpetuate inequities or be intentionally leveraged as a tool for systemic change in leadership development.

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202c: Mass Violence, Humanitarian Disaster, and Israel-Palestine: Applying Strategies of (Co)Resistance in the Classroom

Jasmin Habib, Political Science, University of Waterloo

Just one week into teaching "The Cultural Politics of Israel Palestine" students, staff and faculty on our campus had set up the Gaza Encampment. Those involved sought to end to the War in Gaza as well as -- some would suggest a core principle of which -- to educate themselves and others on the plight of Palestinians, those living in Gaza, the West Bank, the Middle East and in diasporas around the globe. While the encampment 'disrupted' the normal course of life on campus, it also created opportunities for incorporating the encampment's strategic goals into the classroom. In this presentation, I will provide an overview of the approaches that I adopted to help my students to navigate what was happening on our campus as well as halfway around the globe. These included giving them permission to bring student auditors into the classroom; opening up our documentary film viewing sessions to any and all interested students from across the campus; opening up each class with a 'check in' session which gave us time to work through what students identified as critically important to their understanding of current events while also keeping an eye on learning milestones that I had identified for us at the beginning of the course. Each 'opening' meant that I also had to be prepared to share feelings about what was happening to people important in my own life - Palestinians and Israelis. The work of Israeli and Palestinian peace and human rights activists committed to co-resistance as well as nonviolence helped to guide my approach.

Takeaways:

- Giving students the opportunity to work through 'disruptive' political events they have become aware primarily through social media can be incredibly rewarding if as an instructor one is also willing to embrace these moments rather than distance ourselves from them.
- Teaching about mass violence and humanitarian disasters is challenging no matter the site; and teaching about Israel and Palestine is always political.
- Students want to engage with what it is that is challenging -- not only in scholarly terms but in our/their everyday lives. Bringing the stories of social media -- disturbing and disruptive as they may be to our scholarly selves - gives our students the space to share the effects of visual and narrative productions.

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Session 203: Presentations - Mental Health and Well-being

203a: Adapting Research Pedagogy: Leveraging Disruptions for Positive Change (SESSION CANCELLED)

Alishau Diebold, Sociology and Legal Studies, University of Waterloo

As students continue to face mounting threats to maintaining their well-being (Beiter et al., 2015) while managing competing life responsibilities (MacKinnon et al., 2024), it is critical to establish learning environments which prioritize safeguarding student engagement (Tinto, 2017). In this practice-based session, I share strategies from my own continued teaching of graduate-level research courses to demonstrate how disruptions and uncertainty can be leveraged as opportunities for positive change in research-focused education. This session will highlight how pedagogy can be flexibly adapted in real-time and consider how such adjustments can be applied across disciplines.

Learning outcomes include:

1. Understanding strategies for adapting research education curricula to maintain academic rigor while responding to contemporary disruptions,
2. Gaining insights into how to create learning environments prioritizing student engagement; and,
3. Learning how to use technology to mitigate the impact of disruptions and improve the overall learning experience for students.

Over the course of the session, I provide concrete approaches of how to design and deliver a learning environment which encourages student engagement while maintaining high academic standards. For example, including adaptive pedological strategies such as flexible learning materials, participatory research methods, and collaborative learning activities may assist students to remain fully immersed in course content during times of uncertainty. I will also explore how we can harness technology to enhance student engagement and provide continuity in learning regardless of external disruptions. By examining the intersections of pedagogy, student engagement, and technology, this session offers attendees adaptive teaching strategies for research courses, along with a reflection on how disruption can evoke change and energize pedagogical transformation.

Takeaways:

- Understanding strategies for adapting research education curricula to maintain academic rigor while responding to contemporary disruptions,
- Gaining insights into how to create learning environments prioritizing student engagement; and,
- Learning how to use technology to mitigate the impact of disruptions and improve the overall learning experience for students.

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203b: Should We Joke About It?: Instructor-Initiated Humor in the Classroom as a Tool to Support Post-Pandemic Mental Health of University Students

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The intersection of humor and health has garnered significant academic attention, demonstrating the multifaceted benefits of humor on both physical and mental well-being. The assertion that humor positively influences physical health is substantiated by extensive research, including studies by Lefcourt, Davidson-Katz, and Kueneman; Prkachin and Mills; and others. Furthermore, humor's capacity to foster positive emotions (Szabo, Ainsworth, and Danks) and cultivate an optimistic outlook on life (Vilaythong, Arnau, Rosen, and Mascaro) is well-documented. The COVID-19 pandemic, as reported by the World Health Organization, precipitated a substantial increase in the global prevalence of anxiety and depression, with estimates indicating a 25% rise. This period underscored the urgent need for effective mental health interventions, particularly within educational settings. My paper addresses this need by integrating current research on humor and mental health to advocate for implementing humor as a strategic tool in post-pandemic classrooms. Focusing on first-year university students, I highlight a critical transitional phase where mental health support is paramount. Taking the model of humor styles proposed in the "Humor Styles Questionnaire", I discuss the possible impact of four distinct humor styles on the student's psychological well-being, focussing on the benefits and the risks involved. In this paper, I propose strategies for incorporating humor in the classroom, tailored to the specificities of student demographics and course content, as a pragmatic approach to enhancing mental health. In conclusion, I encourage academics to adopt these strategies as they align with the broader goal of creating engaging, supportive learning environments that prioritize students' psychological well-being.

Takeaways:

- Learn about the specific mental health challenges faced by first-year university students in the post-pandemic world
- Explore humor as a tool to support student mental health
- Learn strategies to incorporate humor in lessons that can impact students positively in a classroom

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203c: Supporting Students Through Early Alert Mechanisms During Times of Uncertainty: A Strengths-Based Approach

Paige Doherty, Student Success Office, University of Waterloo

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

While Early Alert can mean different things to different people, a common working definition is "a systematic program or initiative within higher education designed to identify and support students at risk of attrition in order to improve student success, retention, and persistence" (Lynch-Holmes, 2012, p. 2). Early Alert initiatives help identify and connect with students facing challenges when they are early in magnitude, and many of these initiatives can be embedded directly into a course. In this session, we will discuss adaptive teaching methods such as early alert initiatives and strengths-based communications to support student engagement during times of upheaval without sacrificing course content or essential requirements including considerations for TAs place in this work. As an equally important counterpart to students, we acknowledge instructor wellbeing as a crucial factor in this conversation as teachers play a pivotal role in shaping a student's learning trajectory (Finchum, 2016). By way of encouraging instructors to consider how these methods can be applied in their own teaching context, we will demonstrate a strengths-based approach to support student and instructor mental health and wellbeing.

By the end of this presentation, attendees will:

- Learn about the importance of Early Alert initiatives in identifying and supporting students facing challenges.
- Discover how using a strengths-based approach to communicate about failure or concerning performance can support student and instructor wellbeing.
- Gain mechanisms to embed proactive support into their teaching while keeping in mind student and instructor wellbeing.

Takeaways:

- The majority of undergraduate students at the University of Waterloo indicate that impostor syndrome and fear of failure were barriers to their success at some point in their degree.
- Failure and questioning of abilities and skills is to be expected during university where personal growth, academic discovery, and career exploration is taking place so there is a compelling case for early alert initiatives and using a strengths-based approach to communicating about failure or concerning performance with students.
- Early Alert provides mechanisms for instructors to support student success and wellness by proactively identifying and connecting with students facing academic, social, or personal challenges. Early Alert encourages instructors to use their experience and knowledge to identify students facing challenges and connecting students to resources before issues grow in magnitude.
- Strengths-based approach to communicating focuses on the strengths and resources of a person, rather than their shortcomings or failures. This approach can help students build confidence and self-awareness and understand that they are resilient.

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Session 204: Presentations - Preparing Students for Work

204a: From Classrooms to Boardrooms: Building Student Competence in Professional Responsibility and Ethics Through Work-Integrated Learning*

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

Jennifer Dean, School of Planning, University of Waterloo

Kristy Kilbourne, School of Planning, University of Waterloo

There is a growing body of literature that acknowledges the benefits of experiential learning and work-integrated learning (WIL) for post-secondary students (Patrick et al., 2008). Accordingly, WIL has been adopted widely in professionally accredited university programs (i.e., law, medicine, nursing, engineering) to enhance student learning and knowledge integration from the classroom to the workplace (Ferns et al., 2021). Despite the widespread uptake of WIL approaches, there is paucity of research that evaluates the effectiveness of these approaches on learning specific professional competencies in accredited programs (Jones et al., 2009). Given that many professional competencies are difficult to teach in traditional classroom settings (Campbell et al., 2021), there is a need to examine how WIL can be used as pedagogy in professional education to support learning of required competencies.

Our study methodology included a scoping review of grey and academic literatures and key informant interviews with WIL experts (Levac et al., 2015) to better understand how WIL can enhance student learning of professional competencies in the Planning Profession. In this session, we identify best practices for WIL in professional practice education and connect WIL practices to the development of two specific competencies: professional responsibility and ethical behaviour. We discuss characteristics of successful WIL practices, and lessons for professionally accredited schools in general and planning schools in particular. The session concludes by highlighting next steps for future research that incorporates the perceptions and experiences of students and employers to improve WIL in both classroom and boardroom settings.

At the conclusion of the session, attendees will have a better understanding of the best practices for using WIL in professional practice education, and how WIL practices can enhance the development of professional competency in professional responsibility and ethical behaviour.

Takeaways:

- At the conclusion of the session, attendees will have a better understanding of the best practices for using WIL in professional practice education, and how WIL practices can enhance the development of professional competency in professional responsibility and ethical behaviour.

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204b: Implementing a Formative Situational Judgement Test to Support the Development of Professionalism Among Pharmacy Students

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Cynthia Richard, School of Pharmacy, University of Waterloo

Gill Sitarenios, Acuity Insights

Rodica Ivan, Acuity Insights

Traits of professionalism, including ethical judgment and interpersonal skills, are critical for future pharmacists. While the importance of professionalism is widely recognized by pharmacy programs, professionalism remains challenging to assess. However, emerging tools, such as Situational Judgment Tests (SJTs), have shown early evidence of supporting the development and evaluation of professionalism competencies (Cullen et al., 2022). These tools can aid in identifying students requiring intervention to provide pre-emptive remediation, supporting their professional growth (Cullen et al., 2017; Cullen et al., 2020).

The current study examined the efficacy adding a SJT (Acuity Competency Enhancer "ACE") at the Midpoint Assessment. The Midpoint evaluates student performance halfway through PharmD and is comprised of multiple-choice and practical examinations. During the ACE, students were presented with ethical dilemmas and responded to open-ended and multiple-choice questions, requiring critical reasoning. N=61 students provided consent for their data to be used for research. Students open-ended results were categorized into four: (1) reading the situation, (2) how it affects you, (3) effective interaction, and (4) resolution enactment. A remediation scheme was developed to determine the student support required. 83% of students demonstrated moderate-to-high competency across domains, 10% had one domain requiring additional support materials/resources, and 8% had two or more domains for growth, necessitating a meeting with academic advisors.

Overall, the ACE demonstrated good utility at the Midpoint, by identifying a distinct group of students requiring professionalism remediation. This three-assessment approach to the Midpoint (i.e., MCQ Exam, practical exam, ACE) has the potential to foster holistic development among students, balancing core content knowledge with the critical soft skills needed to succeed in an ever-evolving healthcare landscape. This approach to professionalism remediation and support can be modified as necessary to be discipline specific and implemented in other professional programs to enhance student development. At the end of the session, participants will understand the importance of implementing a SJT to support the development of professionalism, to ensure equitable, accessible, diverse, inclusive, and anti-racist healthcare.

Takeaways:

- The development of professionalism competencies in pharmacy school are essential for pharmacists to provide equitable and anti-racist healthcare
- Formative assessments can be powerful in supporting the development of professionalism competencies throughout the PharmD program
- Implementing multiple assessments (i.e., examinations and situational judgement test) can foster holistic development among students, balancing core content knowledge with the critical soft skills needed to succeed in an ever-evolving healthcare landscape

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204c: Bridging Theory and Practice: The Role of WIL 611 in UW's Experiential Education Ecosystem

Ben McDonald, Centre for Work-Integrated Learning, University of Waterloo

Maria Barichello, Centre for Work-Integrated Learning, University of Waterloo

The 2025 strategic vision for UW aims to "build on our global leadership in co–operative education to provide every undergraduate and graduate student with expanded options in experiential learning" (University of Waterloo, n.d.). To achieve a greater balance in the opportunities available for both undergraduate and graduate students, the Grad WIL (Work-Integrated Learning) initiative was formed. Expanding the experiential education ecosystem while prioritizing skills development, authentic work experiences, growth of career trajectories, and development of professional networks helps foster lifelong learning mindsets, wellness and agency in a VUCA (volatile, uncertain, complex, and ambiguous) world (Stevens, Pretti, and McRae, 2024). In the spring of 2023, the Centre for WIL launched the first offering of WIL 611 – a graduate level interdisciplinary course co-developed and delivered in partnership with a rotating faculty member. The course was designed in response to the need for more diverse and accessible options for graduate students to engage in WIL. WIL 611 was designed with quality WIL standards to bridge the gap between academic theory and practical application in the professional world. This course provides graduate students a unique opportunity to integrate their advanced academic knowledge with real-world experience, develop professional skills, and enhance their employability and readiness to engage with the increasingly complex and unpredictable future of work.

By exploring the WIL 611 course, participants in this session will learn about the core elements of Quality WIL: pedagogy, experience, reflection, and assessment, which serve as building blocks that enable faculty to create impactful WIL experiences. Participants will explore opportunities for involvement in a low-stakes collaborative offering of WIL 611 and discover resources for faculty to embed WIL in their courses. Finally, we will cover how the course empowers graduate students with skills and knowledge to collaborate and solve Global Futures problems.

Takeaways:

- Discover how Quality WIL standards shaped the development of WIL 611 and how this adaptable course framework provides students with authentic skill-building and work experiences
- Learn about the Centre for WIL's resources and services to help instructors create meaningful engagement opportunities with industry and community partners
- Explore opportunities to participate in WIL within a supportive, low-stakes course environment via a collaborative offering of WIL 611

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Session 205: Presentations - Innovative Teaching Methods

205a: Interdisciplinarity as a Means of Disruption

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Christine Tenk, Western University

Marlene Janzen LeBer, Western University

Lara Descartes, Western University

Lissette Ochoa, Western University

Alicia Robinet, Huron University

Laura Johnson, Western University

Katie Holmes, Western University

Maggie Kubow, Western University

Andrew Chater, King's University College

Caroline Strang, Western University

Julie Conquer, Western University

Claire Henderson, Academica Group

Although we live in an interconnected world, the domain of higher education remains more or less rigidly disciplinary. To meet the disruptive challenges of the 21st century, we need the strengths, resources, and varying worldviews of many disciplines; yet institutional cultures, structures, and policies at modern universities often discourage interdisciplinary connectedness and collaboration (Heitzmann et al., 2021).

In this paper, we explore the Feminist Pedagogy Research Project at Brescia University College as a case study in transdisciplinary research as a source of connection. Our initial research question asked, "What are our beliefs about teaching and learning at Brescia?" Using collaborative autoethnography, a non-traditional methodology, and an unusually large group of participants, we explored our understanding and implementation of pedagogy. Our 13 participant/researchers included full-time and contract faculty members teaching across eight disciplines, and student-facing staff members. Our methodology modelled our common pedagogy by including lived experience as a legitimate form of knowledge, including faculty and staff from all disciplines, and mentoring novice Scholarship of Teaching and Learning (SoTL) researchers in qualitative research methods. In creating an interdisciplinary research group, the Feminist Pedagogy Project created connection between faculty and staff, and subverted traditional, more siloed approaches to teaching and learning.

Our preliminary analysis of the first two waves of data suggest that participants had a shared set of beliefs about effective teaching, despite the wide range of disciplines they represented. They reported using teaching techniques common to critical pedagogy, including critical thinking, active learning, social activism, shared power, and learner agency, (Freire, 2018; Smith & Seal, 2021). At the end of this presentation, attendees will reflect on the role of interdisciplinary research in SoTL research in creating connections across disciplines and roles within the modern university, disrupting the inherent isolationist nature of the academe.

Takeaways:

- Our preliminary analysis of the first two waves of data suggest that participants had a shared set of beliefs about effective teaching, despite the wide range of disciplines they represented. They reported

using teaching techniques common to critical pedagogy, including critical thinking, active learning, social activism, shared power, and learner agency (Freire, 2018; Smith & Seal, 2021).

- The process of collaboration has led team members to shared teaching practice, to supporting non-traditional pedagogy across the institution, and to insights into the similarities and differences between disciplines. Finally, our project has helped us incorporate the views of contract instructors and student-facing staff, voices which are often not included in SoTL research.

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205b: Innovation and Alignment in Applied Music Teaching and Learning: The Role of Masterclasses

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Laura Benjamins, Western University

Background: Influential voices in higher music education have called for radical changes in what gets taught and how. As these calls for action near ten years of age, we hypothesize that a diverse and autonomous population of applied music instructors may already be a site of innovation in teaching practice. As collaborative learning becomes increasingly important in music learning (Gaunt & Westerlund, 2013), group settings like masterclasses are likely sites for innovation.

Methodology: Using theories of constructive alignment (Biggs, 1996; Biggs & Tang, 2011) and Communities of Practice (Lave & Wenger, 1991), this presentation investigates masterclass teaching practices among applied music instructors at three Southern Ontario university faculties of music. Through questionnaires and semi-structured interviews, we explore the interrelationship of instructors' desired learning outcomes, teaching activities, and their pedagogical Communities of Practice. This research is part of a larger project also incorporating student focus groups and field observations.

Findings: Instructors perceive a wide variety of learning outcomes to be important in this setting, and they utilize varied in-class activities to facilitate these goals. However, there is not a clear alignment between traditional vs. progressive outcomes and activities. Moreover, pedagogical lineage and the culture of specific musical instruments exert a high degree of influence on instructors' teaching practices. With a few notable exceptions, instructors perceive much stronger connections to same-instrument peers outside their institution than they do with colleagues in the same faculty.

Implications: This presentation provides insight into how instructors within higher education are responding as the traditional values and methods of their discipline are disrupted. It also explores the role of constructive alignment in fine and performing arts disciplines, providing ideas and implications for practice.

Takeaways:

Attendees will:

- Understand constructive alignment and how it can be applied in fine and performing arts higher education
- Understand the role Communities of Practice play in teaching practices, particularly in fine and performing arts
- Consider how they can employ a constructive alignment framework to navigate disruption and uncertainty in their field

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205c: Leveraging Expertise in the Classroom: Challenges and Opportunities in Supporting Experiential Learning *

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

Danielle Deveau, English Language and Literature, University of Waterloo

This session communicates early findings from a study that seeks to explore how engaging experts from outside of the university fosters student growth in the applied, creative classroom. It will further investigate how engaging experts can push students to make creative moves in their work, such as major revisions, pushing boundaries, engaging in difficult questions, tackling difficult creative projects, and taking risks.

While experiential learning is de rigour, direct and funded support of this kind of activity is inconsistent across the university. If instructors are able to bring outside expertise into their classrooms, this is often on an ad hoc basis and dependent on their personal professional network or funds from research grants. If we value experiential education, then additional resources or funding models are required. This study considers the benefits and challenges of leveraging experts in the classroom.

This session draws upon literature related to experiential and active learning. It also presents research findings from two undergraduate classes that used external experts and clients in the delivery of content and framing of assignments. In particular, experts in the field provided the activities to be completed in class, and in some instances were treated as "clients" for the end product. This course had "real-world" deliverables such as media products, grant proposals, general-audience articles, etc. Students were invited to include their assignments and course reflections in this study.

Does bringing the outside, professional world in motivate students to think differently about their learning, and the evidence of learning that they submit (in the form of assignments, exams, etc.)? In understanding the role that industry expertise plays in student perceptions/experiences of learning, this project seeks to provide guidance on how expertise should be leveraged and supported in experiential learning classrooms.

Takeaways:

- expertise can be an important factor in student learning (and in student perceptions of learning)
- while experiential learning is activity promoted on campus, direct support to instructors for experiential learning the classroom is limited/unclear
- in the middle of busy teaching terms, it can be a challenge for instructors to find the space to communicate the value of complex and messy learning processes, especially when part of the learning process requires that students find their own way
- instructors who wish to engage outside experts in their classrooms need better support, including instructional training and access to funding for non-traditional

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Session 206: Panel - Preparing Students for the Future of Work: Bridging Academic Learning and Career Readiness in an Era of Disruption

Andrea Prier, Co-operative and Experiential Education, University of Waterloo

Brenda Lee, Physics and Astronomy, University of Waterloo

Noorin Manji, Stratford School of Interaction Design and Business, University of Waterloo

Derek Rayside, Electrical and Computer Engineering, University of Waterloo

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

Michael Wood, School of Environment, Enterprise and Development, University of Waterloo

In today's world, students face increasing disruption and uncertainty as workplaces evolve in response to shifting economic and technological landscapes. Many students begin their studies envisioning a clear pathway to a particular career, only to find that by the time they graduate, the job market has transformed and their path has been disrupted. According to the World Economic Forum, 23% of jobs are expected to change by 2027, with 69 million new roles emerging and 83 million existing ones disappearing. Alongside these shifts in skills and roles, the traditional notion of a linear career path has been interrupted.

Research suggests that students often struggle to translate their academic experiences into the language of achievements valued by employers. A crucial competency in this evolving job market is the ability to recognize and effectively articulate one's skills. This core competency allows students to link their qualifications to employment opportunities and communicate them with confidence.

To support students in making these connections, Co-operative & Experiential Education (CEE) and faculty members across disciplines have been collaborating to integrate career-readiness into academic learning, whether it be exposing students to projects with industry partners or integrating skills articulation into the classroom. This panel will explore these partnerships, highlighting initiatives that help students bridge theory and practice, develop adaptable skills, and navigate their career paths with confidence.

Takeaways:

- Increased awareness of the changing world of work, as well as nonlinear career paths, and the impact these can have on University of Waterloo graduates as they enter the workforce.
- Increased awareness of the range of academic integration partnerships between CEE and faculty members, and how they benefit students in translating their academic experiences into employer-valued competencies.
- Strengthened connections with campus colleagues who are engaging in these academic integration partnerships and influencing course or program-level conversations.

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Session 207: Alternative Session - Disrupting Dissertation Defenses: Continuing Conversations Beyond Oral Exams as Embodied, Relational Pedagogy

Tommy Mayberry, Yorkville University; Toronto Film School

Kim Hong Nguyen, Communication Arts, University of Waterloo

Traditionally, the Dissertation Defense is a one-and-done moment as the culminating oral exam for the doctoral candidate at the conclusion of their studies.[1] While the better ones (for both the candidate and the examining committee) are experientially authentic in being driven by questions and answers conversationally around the table that activate at least the top three tiers of Bloom's Taxonomy (if not more/wider) instead of the relentless firing squad of remembering-, understanding-, and applying-focused call and response, even the most robust, most meaningful, and most deeply engaging Defense conversations often end when inviting the newly-minted Doctor back into the room before debriefing the conversation and sending them (back) into the "real world." But if we disrupt the situating of dissertation committee work as Service in faculty members' Distribution of Efforts and consider it - as we should - as more honestly part of the Teaching and Research workflows, and even more so if we embody that scholarly teaching in the channeling of a hooksian classroom – "the most radical space of possibility in the academy"[2] - what happens when the Classroom of the Dissertation Defense becomes a Coffee Shop? And then when the authentic conversations procedurally started there continue and grow as they don't stop taking place in local coffee shops, restaurants, Zoom calls across timezones, and more?

Coming back together for UWTL 2025, the authors (UWaterloo Internal Committee Member together with now-UW-Alumn) will host just one of these such continued conversations authentically with UWTL participants - specifically on anti-racism, transmisogynoir, critical whiteness, and intersectionality. As an alternative session format to more traditional genres, this session will both overview and model the authors' approach to embodied, relational pedagogy from the actual UW Defense to the present moment as well as engage conference participants in these authentic conversations with the authors. Mirroring bell hooks and Laverne Cox's 2014 Public Dialogue at The New School[3] - a discussion centred in X's dissertation and focused on at length in their Defense - this alternative session will be structured as follows:

- 10 minutes - Welcome, Overview, Set up, including invitational protocol to listen, observe, and engage in each of the following subsections
- 25 minutes - "Beyond Oral Exam Q+A" Dialogue, focussing for this session on anti-racism, transmisogynoir, critical whiteness, and intersectionality
- 20 minutes - Community Conversation, debriefing "Beyond Oral Exam Q+A" Dialogue on social and racial justice and moving metacognitively into dissertation pedagogies and relational pedagogies
- 5 minutes - Closing and Wrap Up

Takeaways:

- How to better prepare Dissertation Committee Members and Doctoral Candidates for their Defense conversations but also the authentic conversations post-Defense in their careers.
- What an embodied, relational pedagogy can look like, especially at the level of dissertation pedagogies, practices, and processes.
- How social and racial justice (specifically focusing for this session on themes of anti-racism, transmisogynoir, critical whiteness, and intersectionality) are inseparable from our work in teaching and learning in higher education.

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Session 208: Workshop - AI-Resistant Learning: Rewarding Critical Thinking Through the Use of Classroom Simulations

Barbara Clerihue, University of Victoria

In today's educational landscape, where generative AI tempts time-starved students to complete tasks quickly at the expense of deep learning, this interactive workshop showcases the strategic use of simulations to promote critical thinking. During the session, participants will engage directly in a simulation exercise that mirrors a business ethics course, demonstrating how continuous, term-long simulations can deepen learning, engage students, and maintain continuity. This session will illustrate how simulations can draw students into progressive, 'real-world' scenarios that counter the temptation and utility of AI tools, transforming traditional assessments into cohesive, engaging educational experiences across various disciplines. The use of generative AI to create authentic, context-rich scenarios—such as fabricated meeting minutes, data sets, survey results, and fake news articles—will also be discussed, highlighting its role in enriching the learning environment and minimize potential for violations of academic integrity.

Despite the compelling benefits of simulation-based learning, challenges do exist when implementing them across disciplines. Time and resource constraints present a significant hurdle, as creating authentic, detailed simulations demands substantial initial investment in developing scenarios, materials, and assessment frameworks. Faculty barriers also emerge when instructors unfamiliar with simulation design or AI tools hesitate to adopt these methods without proper support, compounded by the potentially more subjective and time-intensive nature of evaluating student performance compared to traditional assessments. Additionally, discipline-specific limitations arise in fields like theoretical mathematics, literature, or philosophy, where creating concrete "real-world" scenarios that meaningfully represent abstract concepts may prove particularly challenging. Nevertheless, this workshop is designed to provide instructors with simulation-based strategies that can be scaled to fit various resource levels and disciplinary contexts, potentially helping participants reevaluate perceived barriers as they discover creative approaches and simplified entry points for incorporating simulation elements into their teaching practice.

Participants will not only experience the simulation firsthand but also engage in reflective and collaborative discussions on the methodology, applications, and impact of these pedagogical approaches. The workshop aims to inspire educators to move beyond isolated assignments and envision a curriculum of interconnected tasks that leverage prior knowledge.

Designed to be both enlightening and enjoyable, the session features humorous elements and collaborative group work to foster high engagement and a lively atmosphere. By the end of this workshop, attendees will be equipped to:

- Identify viable applications for simulations in their teaching practices.
- Evaluate the effectiveness of these simulations in boosting student engagement and outcomes.
- Foster a positive perspective on integrating innovative, AI-enhanced simulations to uphold academic integrity and build educational resilience.
- Explore how simulations can be a vital tool in navigating the complexities of modern academia, providing a fun, interactive, and impactful learning experience that prepares both educators and students for future challenges.

Takeaways:

- Effective Use of Simulations: Educators can use simulations to create immersive, realistic scenarios that enhance decision-making skills. These scenarios encourage students to apply their knowledge in varied and complex situations, promoting deeper understanding and retention.
- Counteracting AI Misuse: The session demonstrates practical strategies for using simulations to mitigate the risks associated with the misuse of generative AI in academic settings. By engaging

students in comprehensive, sequential tasks, simulations ensure that technology aids rather than hinders deep learning.

- Broad Applicability: The principles and strategies discussed can be adapted and implemented across different disciplines, not merely limited to the study of business ethics. This adaptability makes simulations a versatile tool for educators seeking to enhance critical thinking and ethical reasoning in their curricula.

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Plenary Session: Thursday, May 1 (1:50pm – 2:40pm ET)

Igniting Our Practice

Brenda Lee, Physics and Astronomy, University of Waterloo

In this Igniting Our Practice session, Dr. Brenda Lee will explain how she implemented the first-ever use of Indigenous learning circles in a physics class to encourage student community and inclusive learning, with support and guidance from Savannah Sloat, Manager of Science Indigenous Initiatives.

Indigenous learning circles emphasize communal dialogue, active listening, and a collective approach to problem-solving, which can deepen understanding and build stronger connections among students by respecting diverse perspectives.

Brianna Wiens, English Language and Literature, University of Waterloo

In this Igniting our Practice session, we will explore AI virtual assistants like Amazon's Alexa and Apple's Siri as timely case studies for teaching feminist media analysis. These ubiquitous voices are more than just convenient; they reveal critical lessons about gendered labour, surveillance, and power in digital technology. We'll discuss strategies to engage students in critical AI analysis, challenge assumptions, and sharpen digital literacy. This session aims to provide tools for integrating media and technology critique into coursework, equipping users to examine how technology both reflects and reinforces power, identity, and social structures. Ultimately, this session aims to equip students to reflect on who—and what—is really doing the work in AI.

Session moderated by Trevor Holmes, Centre for Teaching Excellence, University of Waterloo

Concurrent Sessions (300): Thursday, May 1 (3:00pm – 4:00pm ET)

Session 301: Presentations - Sustainability

301a: Making Lemonade: How Disruptions Lead to a Sustainable Organic Chemistry Teaching Laboratory

Leanne Racicot, Chemistry, University of Waterloo

In the past five years, laboratory teaching has seen multiple waves of disruption. Particularly for the organic chemistry laboratory for non-majors, we have needed to adapt to two years of online learning, accommodating cohorts who had limited laboratory experience and in the last year saw the renovation of our building push us into a last-minute move of the laboratory space. Building a new laboratory gave us an opportunity to choose equipment improving the sustainability of the laboratory and we wanted to mirror this into creating a curriculum highlighting certain Green Chemistry Principles as defined by the American Chemical Society. Most of the literature on green chemistry involve the development of experiments or data evaluation not suitable for the curriculum of the organic chemistry laboratory. This talk will focus on equipment alternatives to improve laboratory sustainability and steps made towards a framework of reflection around sustainability. The ability for young scientists to understand and discuss sustainability of processes is identified as a need for the industry. Therefore, introducing Green Chemistry Principles and their application will better prepare them for their future career. Future work includes creation of prompts for writing assignments to help students develop stronger writing skills.

Takeaways:

- Sharing the use of more sustainable equipment and practices as well as making them simple and more affordable can improve their wider adoption.
- “Greening” a chemistry curriculum does not mean having to make sweeping changes or developing new experiments.
- Strengthening student’s ability to think about large problems like sustainability will better prepare them for their future careers.

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301b: Strategies to Stimulate Critical Thinking and Foster Sustainability Knowledge

Christine Moresoli, Chemical Engineering, University of Waterloo

This session is about a student-centered pedagogical approach based on critical thinking and reflection leveraging the Future Ready Talent Framework (FRTF) and the Waterloo Experience Accelerate (WEA) program developed for first work term students. The approach supports the sustainable futures, societal futures and technological futures of the University of Waterloo strategic plan.

In this approach, students worked in small groups and learned from each other by examining examples of sustainability over a four-week period. Students developed critical thinking skills by independently creating a concept map to organize their understanding of sustainability examples. Students presented their concept map in a small group environment and received feedback from peers and provided feedback on the concepts map of peers. Students learned how to provide and follow up with meaningful and actionable feedback using the SMART (specific, measurable, achievable, relevant and time bound) goal framework. The depth and breadth of the concept map, captured by the number and quality of concepts, connections, levels and links between its different elements, hierarchy and structure, increased over the four-week period. This approach increased student self-confidence, promoted their growth and the development of skills in the design and deliver solutions cluster of the FRTF.

In this presentation, two types of examples, examined by students in the WEA program, will be discussed. One example is the mapping of stakeholders and their role and relationships in selected applications of socio-technical transitions with a multi-level perspectives tool (van Rijnsoever et al, 2020). The second example is the mapping of environmental, social and governance corporate reporting of selected organizations by adapting metrics developed by the World Economic Forum.

Takeaways:

- Attendees will learn about a student-centered pedagogical approach based on critical thinking and reflection that took place over a four-week period. The learning objectives and organization of the pedagogical approach, the type of support provided to the students, how frameworks were developed, the level of student engagement, benefits and challenges of the approach and how it could be adapted to a course environment will be discussed.

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301c: Informal Community of Practice for Sharing Sustainability Knowledge and Teaching Resources in the Faculty of Engineering*

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

Ada Hurst, Management Science and Engineering, University of Waterloo

Christine Moresoli, Chemical Engineering, University of Waterloo

Mehrdad Pirnia, Management Science and Engineering, University of Waterloo

Chris Rennick, Dean of Engineering Office, University of Waterloo

Reem Roufail, Systems Design Engineering, University of Waterloo

This session is about an informal community of practice (CoP) that has recently emerged in the Faculty of Engineering. The CoP was initiated with a LITE grant to address the need for engineering programs to equip students with knowledge and skills for the development of technology that are sustainable and support communities in managing disruptions caused by climate change. The teaching of sustainability is an essential component of the University of Waterloo strategic plan, specifically sustainable futures, societal futures and technological futures.

The complexity of sustainability and the challenges faced by engineering programs in selecting content and approaches to integrate sustainability and difficulties faced by instructors with knowledge and tools to discuss, teach and assess sustainability is highlighted in research (Thürer et al, 2018). The benefits of a CoP framework in bringing together instructors looking for educational resources and best approaches for the teaching of an emerging interdisciplinary field has been recognized (Kleinschmit et al, 2023).

The goal of the CoP was to accelerate learning about sustainability and develop and test teaching resources on sustainability in undergraduate engineering curricula leveraging the strength and diversity of faculty, staff and students. The output of the CoP has expanded beyond the initial goals of the LITE grant by creating a variety of teaching resources which have been implemented in multiple courses. The CoP in the faculty of engineering, has offered a space for faculty members and staff to discuss and share sustainability knowledge and adapt approaches to integrate sustainability in existing courses while being mindful of learning objectives and accreditation requirements. It has enabled instructors in becoming comfortable with the breadth of sustainability knowledge and values and the benefits of case studies for teaching of sustainability.

Takeaways:

- Attendees will learn about the goals and structure of the CoP and how teaching resources were created and used in management engineering and systems design engineering courses and in co-op to support student teams with the analysis of sustainability in their design projects. Challenges and lessons learned from this CoP will also be shared.

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Session 302: Presentations - Learners' Identities

302a: Teaching Computing Ethics by Focusing on Discrimination and Surveillance: Takeaways from an Online vs. In-Person Teaching Experiment*

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

Dan Brown, Cheriton School of Computer Science, University of Waterloo

Maura Grossman, Cheriton School of Computer Science, University of Waterloo

We discuss our experiences teaching a computing ethics course focused on discrimination and surveillance. Our course content includes algorithmic bias; how gender, racial and sexual minorities are disproportionately impacted by technology; surveillance and privacy concerns; and methods technologists can use for ameliorating these concerns in the workplace and in society. We also discuss the results of an experiment comparing two different formats for teaching this material: online versus in-person.

We taught the same course in these two formats in the same term, with the same instructors, same syllabus and reading material, same evaluative format, and same structure; the only difference between the two instantiations of the course was the format and the choice students made in selecting one format or the other. Our analysis concentrated on the extent and contents of self-disclosure by both students and instructors. Using both quantitative and qualitative methods, we observed a higher prevalence of self-disclosure by both students and instructors in the online section. Our data suggest that students may experience more safety and comfort making personal self-disclosures in online sessions. We give examples from the course sessions of the details of self-disclosure that participants made. Notably, an analysis of demographic data revealed that minority group members were particularly active in self-disclosure in both formats.

Overall, our findings suggest that an online setting may be more effective for delivering computing ethics courses where a primary goal is to increase open discussion and self-disclosure among participants as a means of learning about discrimination and surveillance through technology. We discuss the ethical implications of presenting such classes online and engaging with minority populations, particularly given that the platforms used for this teaching are themselves engaging in surveillance and that by asking minority students to self-disclose we may be perpetuating the heavier burden placed on them.

Takeaways:

- Student engagement can be increased in computing ethics courses when the subject matter is focused on discrimination and surveillance.
- Online sections of politically and personally charged material can enable students to engage in relevant self-disclosure in class discussions in a safe way.
- Instructors should consider the safety of minority populations in class discussions, both in online and face-to-face sessions, in determining the modality of their teaching.

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Our paper: Chen, H., Grossman, M., Brown. Teaching computing ethics by focusing on discrimination and surveillance: takeaways from an online teaching experiment. Poster to be presented at SIGCSE 2025, Pittsburgh PA.

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302b: The "Best Person for the Job?": Risks and Rewards When Lived Experience and Diverse Identities Intersect with Teaching Practices

Lauren Spring, Conestoga College

Sara Kafashan, Conestoga College

Recently, many post-secondary institutions have prioritized equity, diversity, decolonization, and inclusion (EDDI), explicitly moving towards recognizing the multiplicity of marginalized voices and perspectives (e.g., Griffin, 2019.; Hansen, 2022; Huff, 2021).

Relatedly, there has been a surge of academic hiring advertisements highlighting lived experience as a requirement or preferred asset. This practice is particularly prominent for hires within disciplines where lived experience provides a unique perspective (e.g. faculty teaching about Critical Disability Studies, Indigenous Studies, Mental Health, and anti-racist, anti-oppressive Social Service work). Such calls for self-disclosure reveal a shift in academia that is both positive—an essential step in correcting historical wrongs and unequal power imbalances as the inclusion of "subjugated or denigrated" knowledge can disrupt "knowledge proper" (Voronka, 2019, p. 11)—and potentially problematic (if the highlighting of certain aspects of one's identity is a job requirement, will these educators be able to maintain ownership over their stories and perspectives and be allowed to decide how much of themselves to share? In which ways and with whom?) What risks might arise for these educators personally or professionally if they feel obliged or inclined to share sensitive parts of their own stories and identities in the classroom?

This phenomenon has led us, two researchers at a local Ontario College, to launch a research project guided by the following questions:

- How does faculty identity inform teaching philosophies for disciplines that have emotionally complex topics as a key part of the course learnings?
- Does having "lived experience" make one a better educator of these subjects? (Why? / Why not?)
- What pedagogical tools do faculty use to address these subjects (personal stories, specific active learning activities, role of aesthetic force) and why do they choose these approaches?
- Faculty mental health: What toll, if any, does it take on these faculty members?

During our presentation, we will share preliminary findings from interviews conducted with faculty members.

Takeaways:

- Exploring the pros and cons of encouraging faculty member to share sensitive parts of their identities and experiences with academic hiring committees and students.
- Discuss teaching methods and tools that some faculty have incorporated into their practice in order to make certain lessons more powerful and to protect themselves and their stories

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302c: Fostering Motivation, Normalizing Uncertainty, and Cultivating a Learning Identity: The Development of a Micro-Course

Min Huang, Student Success Office, University of Waterloo

Nada Alshehabi, Student Success Office, University of Waterloo

Students' identities are fluid and influenced by their experiences and environments (Kolb & Kolb, 2009; MacFarlane, 2018), especially during times of domestic and global uncertainties. In this presentation, we will introduce a new micro-course developed by the Student Success Office on Identity and Learning. This is an asynchronous online micro-course, designed primarily for undergraduate students, who can complete the module in 30-45 minutes.

This micro-course offers practical strategies for students to evaluate various aspects of their identities to promote better learning, motivation, and academic engagement. It achieves this through the following approaches:

- Intersectionality: using an identity wheel activity, students gain insights into the intersection of their identities and how those intersects could present challenges and opportunities in learning (Bešić, 2020).
- Future-self as motivation for academic success: students are encouraged to visualize their future by creating an ideal future self that can motivate them to learn, seek out opportunities, and persist through challenges (Nurra & Oyserman, 2018).
- Managing imposter phenomenon: students are encouraged to identify and overcome imposter phenomenon and they are provided with scenarios that normalize these feelings among high-achieving people.

By introducing these approaches to fellow educators, we aim to raise awareness of the social, cultural and linguistic factors that may impact students' learning and deepen their understanding of the connection between identity and learning. This presentation will conclude by highlighting the importance of adopting identity-conscious, inclusive approaches in our student support strategies to limit the impact of disruptions on students' motivation.

Takeaways:

Attendees of this session will:

- learn about a new micro-course on Learning and Identity that University of Waterloo instructors can embed right into their course LEARN shell,
- explore approaches to evaluate and address identity-related factors affecting student learning and success, and
- gain tools to help students reflect on identity, enhance learning motivation, and overcome imposter phenomenon and self-doubt.

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Session 303: Presentations - Mental Health and Well-being

303a: Enhancing Student Wellbeing in Higher Education: Insights from the WiSER@Waterloo Pilot*

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

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Katie Plaisance, Knowledge Integration, University of Waterloo

Christine Logel, Social Development Studies, University of Waterloo

Anna Zavadskaya, Psychology, University of Waterloo

In 2024, we piloted new initiative, Wellbeing in Student Education and Research (WiSER@Waterloo). One of WiSER's key aims is to implement and evaluate evidenced-based practices for student belonging, wellbeing, and equity in our classrooms. We trained 20 instructors in strategies for building more inclusive classroom environments from a library of freely available practices that have been shown to improve student wellbeing and to support more equitable outcomes in university settings. In this talk, we report on the pre- and post-intervention survey results of a subset of 200 students who were enrolled in "WiSER" classrooms in Fall 2024. We also discuss the qualitative experience of instructors who participated in the training and subsequently implemented one or more inclusive classroom practices.

The results indicate that students in the pilot classrooms experienced less stereotype threat by the end of the term and perceived their instructors as having more of a growth mindset post-intervention. While students felt more stressed at the end of the term, they also reported being more confident in their ability to cope with stress in the post-course survey. Some students reported a decline in their mental health throughout the term, but did not attribute that decline to the classes included in the pilot study. Instructors reported finding the workshops helpful but also noted the challenge of implementation given high workloads and competing demands for time (i.e., research and service commitments). We conclude the presentation with next steps for improving student wellbeing in university classrooms given the findings from our study.

Takeaways:

- We can improve students' wellbeing with simple, scientifically proven, classroom practices.
- The competitive culture of the University of Waterloo may hinder students' wellbeing, despite instructors' best efforts at setting up an inclusive classroom environment.
- Instructors often have an overwhelming workload, preventing them from implementing even the simplest classroom practices.

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303b: Enhancing Student Performance and Well-being through Life Balance Skills

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In an era defined by disruption and uncertainty, life balance skills have become essential tools to help students navigate academic, personal, and cultural challenges. This session explores how time management, stress reduction, and boundary-setting strategies can empower students to thrive amidst these challenges. Drawing on my Certificate in University Teaching research and teaching experience with first-year students in UNIV 101 at the UW, this presentation bridges theory and practice to highlight actionable strategies that support student well-being and academic performance. Life balance skills enable students to manage the pressures of full course loads, part-time jobs, and personal responsibilities while addressing internal challenges such as imposter syndrome. This session focuses on practical approaches, such as role-playing exercises to practice assertive communication, mindfulness techniques to reduce stress, and journaling prompts to encourage self-reflection. These methods are designed to foster resilience and provide students with tangible tools for managing their workload and personal well-being. Aligned with the theme of disruption and uncertainty as drivers for change, this session demonstrates how life balance skills equip students to adapt and thrive in an ever-changing academic and social landscape. These skills are not only responses to crises but proactive measures that prepare students to tackle future challenges with confidence and resilience. Participants in this session will gain an understanding of how life balance skills can help students navigate disruptions, practical strategies for integrating these skills into teaching practices, and insights into fostering a balanced and supportive academic environment. The presentation provides a roadmap for educators to implement these strategies in their courses, particularly in foundational programs like UNIV 101 ensuring that students are supported in their academic and personal journeys while building skills for long-term success. This session underscores importance of prioritizing student well-being as a core element of teaching in times of disruption and change.

Takeaways:

- Teaching time management, stress reduction, and boundary-setting equips students with the tools to manage academic and personal disruptions effectively, reducing stress and improving performance.
- Interactive strategies like role-playing for boundary setting, mindfulness exercises, and journaling prompts can be seamlessly incorporated into courses like UNIV 101 to actively support student well-being and engagement.
- Educators can play a pivotal role in addressing challenges such as imposter syndrome by integrating wellness practices into teaching while leveraging institutional resources like counseling services and academic workshops.

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303c: Fostering Growth Mindset and Resilience to Failure in Uncertain Times

Marcus Chan, Knowledge Integration, University of Waterloo

In an era with constant disruption and uncertainty, preparing students to adapt and thrive is more essential than ever. This session offers a practical framework for fostering resilience and building a growth mindset within educational spaces. By equipping students with these intrapersonal skills, educators can help them both navigate challenges and view uncertainty as an opportunity for growth and innovation.

This presentation draws from my fourth-year Senior Honours Project and integrates research from educational psychology, sociology, and character education. It highlights the relevance of established frameworks, including Edmondson's (2023) typology of failures and Berkowitz's (2021) PRIMED model for character education, to show how theory and research can directly inform teaching practice. Using examples from a series of workshops designed for high school students in the Waterloo region, I will demonstrate how resilience-building activities and growth mindset strategies can be embedded into a variety of curricula.

Participants in this session will achieve several key learning outcomes. They will understand how disruption and uncertainty can serve as drivers for fostering resilience and growth mindset in students. Participants will also explore tools and techniques such as reflective practices, metacognitive exercises, and activities like failure resumes to promote these skills. Additionally, they will learn how to design and facilitate workshops that enhance intrapersonal development, leaving the session with actionable strategies they can immediately apply in their own educational settings.

By the end of this session, attendees will have a deeper understanding of how to create supportive, growth-oriented spaces that empower students to embrace challenges and thrive in times of uncertainty.

Takeaways:

- Disruption can drive resilience when failure is reframed as a learning opportunity, fostering adaptability and a growth mindset.
- Simple methods like failure resumes and reflective journaling help students build self-awareness and effectively navigate challenges.

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Session 304: Presentations - Preparing Students for Work

304a: Attracting and Retaining the 'Best and the Brightest': Repositioning English Language Development as a Driver for Change at the University of Waterloo

Jane Karanassiou, Renison University College, University of Waterloo

Keely Cook, Renison University College, University of Waterloo

In September 2024, Blit, Skuterud and Zhang published an analysis of Canada's International Education Strategy through examining data from University of Waterloo Bachelor degree graduates. Despite the generally robust post-graduation earnings of Waterloo's international students, the authors note significant disparities in average earnings relative to Canadian-born or long-term/ foreign-born permanent residents (PR) counterparts that "appear to be entirely explained by deficiencies in English language proficiency" (p.3). To attract the 'best and the brightest' and alleviate the "economic integration challenges" (p.5) faced by international students, the authors propose targeted tuition subsidies or income tax incentives alongside raising employer awareness of DEI hiring practices. While these are undoubtably worthy objectives, we argue that language concerns should not simply be mitigated by pre-entry screening and post-graduation incentives. In response to significant declines in international student enrollment, opportunity exists for Waterloo to advance its national and global impact by repositioning English language development as a core and ongoing responsibility of the university throughout the duration of a degree. Research on international student perceptions of English language development while studying Math, Science or Engineering at Waterloo reveal a troubling disconnect from the broader linguistic environment and a lack of incentive to engage with their academic discipline through English. Although student observations on linguistic agency indicate a welcome shift from 'English only' narratives toward more inclusive plurilingual paradigms, the culture, epistemology and methods of expression of a discipline are deeply interwoven with the language and context in which learning occurs (Nikitina, 2005; Bond, 2020). This research-based presentation addresses the implications of balancing linguistic freedom with authentic participation in disciplinary practices through English to better attract and retain international students. Innovative measures to disrupt the positioning of English language development will be recommended in alignment with Canada's international education strategy. These measures aim to enhance language outcomes for all graduates at the University of Waterloo and strengthen the appeal of the university in these uncertain times.

Takeaways:

- Opportunities to advance Waterloo's national and global impact by repositioning English language development as a core and ongoing responsibility
- The challenges in English language development faced by current international students studying Science, Engineering and Math at Waterloo
- Practical measures in support of Canada's International Education Strategy to enhance language outcomes for all graduates

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304b: How to Cultivate Caring Graduates: A Grounded Theory Exploration with Alumni

Karla Boluk, Recreation and Leisure Studies, University of Waterloo

David Drewery, Work-Learn Institute, University of Waterloo

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

Keith Suares, Work-Learn Institute, University of Waterloo

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

Disruptions in higher education—diminishing resources, shifting expectations, and growing uncertainty—demand that academic departments rethink how they prepare students for an unpredictable world. While graduate employability often defines institutional value (Stork et al., 2015), universities must also prepare students to respond to global challenges (University of Waterloo, 2025). Cultivating caring graduates is vital to this aim (World Economic Forum, 2025). This session explores how academic departments can intentionally cultivate caring graduates. Drawing on Noddings' (2012) ethic of care and Hamington's (2004) framework of embodied care—caring knowledge (understanding care conceptually), caring habits (routinized acts of care), and caring imagination (anticipating and responding to others' needs)—we examine how post-secondary experiences shape graduates' ability to care in personal and professional contexts. Based on seven focus groups with 29 Recreation and Leisure Studies alumni (spring 2024), our grounded theory analysis (Charmaz, 2006) identifies key strategies for embedding care into academic programs.

Attendees will leave with actionable insights on:

- Key curricular and co-curricular experiences that develop caring graduates.
- Strategies for integrating care into departmental structures and pedagogy.
- Approaches for fostering a culture of care among faculty, staff, and students.

By embedding care into academic programs, universities can respond to disruption not just as a challenge but as an opportunity to build stronger, more resilient learning communities.

Takeaways:

- Graduates articulate experiences that transformed them into caring people
- These experiences are both curricular and non-curricular, involving the content, processes, and people associated with an academic department/program

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304c: Student and Employer Perceptions of Skill Development and Career Preparation in Undergraduate Geoscience Education at the University of Waterloo

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Undergraduate education forms the foundation of the knowledge used by professional geoscientists (P.Geo.) in their careers after graduation.[1] However, workforce disruptions and a rapidly evolving jobs market mean the skills that students develop in undergraduate programs are not necessarily those most desired by employers.[2] To address this uncertainty, 155 University of Waterloo Department of Earth and Environmental Sciences (EES) alumni and associated employers were surveyed in 2024 to identify the skills that they value most highly when hiring and training junior geoscientists, and those they wish they had spent more time developing during their own geoscience education. Comments were aggregated into 12 skills across two categories based on P.Geo. accreditation criteria [1] and previous general [2] and geoscience-specific [3] employer surveys: 1) General Skills – Adaptability, Communication, Initiative, Interpersonal, Reasoning, Self-Management; and 2) Technical Skills – Conceptualization and Systems Thinking, Data Management, Field/Laboratory, Professional Geoscience, Numeracy and Software, Technical Communication. Surveys were then conducted of 115 undergraduate students across eight fourth-year EES courses during the Fall 2024 and Winter 2025 terms. Of the 12 skills, students were asked to identify those they believed employers value most highly in junior geoscientists, those they personally felt most confident in, and those they felt least confident in. For some skills, such as Communication and Field/Laboratory, students correctly perceived them to be most valued by employers and indicated they were most confident in their own abilities. However, for other skills such as Reasoning, students perceived their value to be low and indicated they were least confident in their abilities, despite them being most valued by employers. These surveys serve as a model for improving curriculum reviews and provide critical information for instructors to ensure that undergraduate EES programs and courses are setting up students for success in their careers after graduation.

Takeaways:

- Alumni and associated employers provide valuable information for curriculum reviews. Departments should maintain regular contact to support continuous innovation in course content and teaching to ensure that students succeed in their careers after graduation
- The skills that students have the most opportunities to develop during their undergraduate education do not necessarily align with those most desired by employers. In some cases, underdeveloped skills can be addressed by modifying existing assessments and teaching practices. In other cases, the rapidly evolving jobs market may necessitate completely new skills that need to be incorporated through new courses or types of learning.

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Session 305: Presentations - Assessment

305a: Emotional Intelligence in Education: Bridging the Gap Between Deep and Surface Learning

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The primary outcome of emotional intelligence (EI) is the capacity to comprehend and manage both one's own emotions and those of others and to effectively transform negative feelings during disruptions into positive emotions and constructive actions. In academic settings, students arrive at classrooms with diverse emotions, thoughts, backgrounds, and objectives, while instructors may experience a range of additional emotions. Such differences are amplified in times of disruption and uncertainty. The key EI competencies include self-awareness, self-regulation, and empathy, which collectively foster academic achievement and motivate learners to engage in self-directed learning techniques, thereby enhancing their cognitive and personal growth (Zhoc et al., 2020). Educators' pedagogical abilities are positively influenced by their EI competencies, enabling them to adopt student-centered teaching methods that support student success and promote EI among learners (Khassawneh et al., 2022). Students with high EI demonstrate improved resilience, flexibility, and engagement, which contribute to their overall academic success (Thomas & Allen, 2021). Integrating EI into teaching activities encourages students to adopt deeper learning approaches. For example, collaborative brainstorming to develop methodologies and solutions for problem-based learning (PBL) activities helps transform challenges into positive experiences. Engaging in the iterative refinement of proposed methodologies until reaching a consensus on an approach for other challenges fosters empathy for the diverse cognitive abilities and emotional needs of students. Furthermore, providing emotionally supportive feedback creates more engaging learning environments, enhancing both students' emotional well-being and academic performance.

This session will explore various tools for enhancing EI among learners. Drawing from previous teaching practices aimed at promoting EI, we will cover the implementation of PBL and peer feedback activities, demonstrating the integration of social-emotional learning programs into classroom pedagogical practices. Attendees of this session will be able to identify and implement effective methods to support student learning in the face of disruptions and uncertainties.

Takeaways:

- Emotional intelligence (EI) plays a crucial role in enabling educators to adapt their pedagogical strategies to accommodate the diverse cognitive and emotional needs of learners while students with higher EI capacities demonstrate elevated levels of academic achievement and engagement.
- Problem-based learning (PBL) can enhance emotional intelligence (EI) among learners. It particularly improves their self-awareness, social skills, stress management, and adaptability. The sense of achievement and belonging in the educational environment, derived from solving challenging tasks, contributes to students' emotional well-being and aids their adaptation to new circumstances.
- Emotion-focused feedback can support student motivation, engagement, emotional resilience, self-compassion, which in turn encourage students to embrace more profound learning methods.

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305b: Navigating Disruption with Consistency: A Unified Presentation Rubric to Enhance Communication Skills in Engineering Education*

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

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In an era marked by disruption and uncertainty, fostering clear and consistent communication is critical for engineering students. This session highlights the power of interdisciplinary collaboration in refining a unified oral presentation rubric, designed to enhance communication as a key graduate attribute.

The rubric was developed collaboratively with input from studio and English instructors, as well as feedback from students. This approach ensured the rubric effectively addressed both discipline-specific communication skills and broader professional competencies. Piloted with first-year architectural engineering students, the rubric was designed to establish consistent evaluation criteria and support communication skill development across academic levels. The rubric provides clear and consistent evaluation criteria to strengthen students' communication competencies. Student feedback collected before and after exposure to the rubric demonstrated its effectiveness in clarifying expectations and improving their understanding of communication elements. This iterative process ensures continued refinement, enhancing the rubric's relevance for academic and professional communication.

Participants will:

- Analyze the development and pilot implementation of the rubric.
- Evaluate student and instructor feedback that informed its refinement.
- Discuss strategies for adapting consistent communication metrics across courses.

Participants will critically assess a sample rubric element identifying strengths and areas for improvement. Through discussion, they will explore its potential application in their own courses and propose refinements to enhance its effectiveness. This focused activity will demonstrate how the rubric can be used effectively while highlighting its practical benefits for students and educators. This session highlights the role of interdisciplinary collaboration in developing consistent assessment tools that equip students with strong communication skills, essential for success in dynamic academic and professional environments.

Takeaways:

- Examine the development and implementation of a unified oral presentation rubric:
    - Participants will analyze the step-by-step process of developing and piloting a standardized oral presentation rubric for first year architectural engineering students
    - They will identify key elements that contributes to rubric clarity and effectiveness in communication assessment.
- Evaluate student and instructor feedback to inform rubric refinement: participants will interpret feedback from students and instructors to assess how the rubric enhanced clarity in communication expectations.
- Discuss the scalability and application of the rubric across courses
    - Participants will explore how the rubric can be adapted for upper-year courses to provide a cohesive framework for communication skill development.
    - Through a structured activity, they will review a sample rubric element, evaluate its clarity and discuss its potential use in their own courses.

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305c: Two-Stage Testing with Immediate Feedback Assessment Technique Cards to Promote Student Learning and Reduce Faculty Stress – at the Same Time

Jacqueline MacDonald, Biology, University of Waterloo

Jason Thompson, Centre for Teaching Excellence, University of Waterloo

Educational research suggests engaging with formative feedback is among the most effective ways to improve student performance (Cobbold & Wright, 2021; Boud & Molloy, 2013). Yet providing such feedback for tests can be time consuming.

Two-stage tests involve individual test-taking followed by collaborative/group test-taking where students review the test and engage in formative feedback with their peers. Immediate feedback assessment technique (IF-AT) cards can be part of the group tests, where groups scratch off multiple-choice answers and can immediately see whether their answer was correct.

Our previous research with two-stage testing in a 2nd-year Biology course showed that most groups discussed possible answers to come to a consensus, and that most students thought the group test helped them better understand tested concepts. In addition, some students planned positive changes to their study habits as a result of the group test, and some said the group test helped them reduce stress or meet new people (MacDonald and Thompson, 2024).

Group tests can also help reduce stress of the faculty member running the course. When students can discuss test answers with peers, they have fewer questions that need to be addressed by the faculty member. When students see the right answers on IF-AT cards during the group test, they are less likely to feel a need to see their individual test papers.

Our presentation will showcase the use of IF-AT cards for group tests as a component of two-stage testing, and may also discuss our plans for future research.

After completion this session, participants will be able to:

- Describe the benefits of incorporating two-stage testing and using IF-AT cards in a course.
- Implement two-stage testing & IF-AT cards in their course(s) to promote student learning without adding to their workload.

Takeaways:

- Describe the benefits of incorporating two-stage testing and using IF-AT cards in a course.
- Implement two-stage testing & IF-AT cards in their course(s) to promote student learning without adding to one's own workload.

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Session 306: Workshop - Generative Artificial Intelligence and Graduate Supervision: Insights, Recommendations, and Resources*

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

Kari D. Weaver, Library, University of Waterloo; OCUL

Nadine Fladd, Writing and Communication Centre, University of Waterloo

Graduate students inhabit a unique position in the academy; they are simultaneously students and scholars as well as, frequently, educators. Each of these social identities is being impacted by the rise of generative artificial intelligence (GenAI) tools and their application to learning and research tasks. These technologies are disrupting education broadly and in ways felt acutely by graduate students across their identities. Additionally, they face immense pressure to complete their degrees in a timely manner. Consequently, graduate students across disciplines are being encouraged to streamline or outsource the research and writing of the literature review portion of their projects by using GenAI tools (Loisel & Chastin, 2023).

Graduate supervisors, as a product of their teaching relationship with graduate students, hold immense sway in how GenAI tools are integrated (or not) into graduate student practice. The ethical, developmental, and career implications of graduate students – both masters' and doctoral – using GenAI technologies requires particularly careful consideration as an aspect of this supervisory guidance. Although emerging research about GenAI use in higher education has examined the perceptions and practices of students themselves as researchers and writers (Wright, 2024), there currently exists limited guidance on supervisory approaches to graduate student use of GenAI.

This workshop aims to address this gap in graduate supervision practices through the introduction of decision-making tools, the sharing of experiences from the facilitators' work teaching graduate students about the implications of GenAI for research and writing, and the open discussion over tensions introduced by GenAI in graduate research.

Takeaways:

- Participants will identify the benefits and risks to graduate student research and writing practices inherent in generative artificial intelligence use.
- Participants will understand a framework for decision-making around generative artificial intelligence use that balances ethics and productivity.
- Participants will access recommendations and resources for discussing generative artificial intelligence with their graduate students.

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Session 307: Workshop - Exploring and Applying the AI Human Rights Impact Assessment for Educators (AIHRIAE)

Lynn Long, Conflict Management and Human Rights, University of Waterloo

The release of ChatGPT in November of 2022 significantly disrupted post-secondary education. As AI use has grown and the variety and complexity of available AI tools has increased, responses among educators have varied. Some have embraced these technologies but may not have fully considered the potential risks. Others, overwhelmed by the risks, have chosen to avoid AI technologies altogether. Many fall somewhere in between, trying to balance risks and benefits while preparing students for future workplace requirements. The AI Human Rights Impact Assessment for Educators (AIHRIAE) is designed to meet the needs of all educators no matter where they fall on this spectrum.

The AIHRIAE was inspired by the "Human Rights Impact Assessment for AI" released by the Ontario Human Rights Commission and the Law Society of Ontario in November 2024. This timely and relevant tool was designed to guide organizations in AI selection and use. Unfortunately, it was not easily applied to educational settings. The AIHRIAE was developed to fill this gap. This structured guide is tailored to the needs of post-secondary educators considering the use of AI in their classrooms. It also aligns with UNESCO's goal of harnessing the benefits of artificial intelligence while ensuring that human rights are promoted and protected. The AIHRIAE takes educators step-by-step through the process of identifying benefits and risks associated with an AI application, developing risk mitigation strategies, and creating a plan for optimizing learning moving forward.

In this workshop, participants will be introduced to the AIHRIAE and will work through the Quick Start Guide. They will review and reflect on the complementary In-depth Guide and discuss its applicability in their own settings.

Agenda:

- Background and Introduction (3 min)
- Tool Structure and Purpose (5 min)
- Individually: Work through the Quick Start Guide (5 min)
- In-depth Tool Overview (10 min)
- Small Group Discussion Focusing on Reflection Questions (15 min)
- Reflection Questions:
    - Did you find the Quick Start Guide to be helpful in preparing you to engage with the In-depth Guide?
    - What part of the AIHRIAE tool did you find to be most valuable?
    - What additional features could make the AIHRIAE more accessible, useable, or applicable in your setting?
    - What other thoughts did your group have?
- Large Group Debrief (10 min)
- Next Steps (3 min)
- Q&A (9 min)

Takeaways:

To effectively harness the benefits of AI while ensuring human rights are promoted and protected:

- Ensure AI development and adoption are founded in strong pedagogy, achieve intended learning outcomes, and meet the needs of learners,
- Consider whether the context makes AI use high risk,

- Mitigate risks by ensuring transparency, minimizing bias, seeking interdisciplinary expertise, and considering alternative technologies, when appropriate.

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Session 308: Workshop - Using Pedagogical Innovations to Navigate Times of Uncertainty and Disruption in Teaching and Learning

Kyle Scholz, Teaching Innovation Incubator, University of Waterloo

Sarah Seabrook, Teaching Innovation Incubator, University of Waterloo

In an ever-changing educational landscape, characterized by uncertainty in how we, as educators, approach issues that are upending traditional teaching and learning environments such as GenAI and the increasing difficulty of disconnecting from the outside world, we may find ourselves wanting to – or needing to – adopt innovative pedagogical strategies that foster adaptability and resilience in their learners. Yet, the question remains: what is pedagogical innovation? Who decides what is "innovative"? How does innovation differ from disruption in the eyes of others (e.g., administrators, students, support staff, etc.)? These questions underscore the reality that much work remains in understanding what constitutes a pedagogical innovation and the benefits of engaging in innovative thinking when it comes to teaching and learning in the 21st century. What might be considered innovative in one academic context may be commonplace in another, but does this mean it is any less innovative?

This workshop aims to equip educators with a comprehensive understanding of pedagogical innovations as understood by Waterloo's Teaching Innovation Incubator (TII) by walking participants through an adapted version of Palmer and Giering's (2023) Taxonomy of Pedagogical Innovation in Higher Education. Facilitators will discuss the adaptations they've incorporated into Palmer and Giering's taxonomy to adequately fit the University of Waterloo content. We will highlight the practical applications of this taxonomy by the Incubator in creating flexible and responsive learning environments since 2022 at the University of Waterloo.

Takeaways:

By the end of this workshop participants will…

- have an improved understanding of pedagogical innovations and the TII's pedagogical innovations framework and will be able to apply each aspect of the framework to develop an innovative teaching project.

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Session 309: Poster Flash Talk Presentations

See Poster Session 500 section for abstracts.

Concurrent Sessions (400): Thursday, May 1 (4:20pm – 5:20pm ET)

Session 401: Presentations - Students as Partners

401a: Addressing Global Disruptions through Contextualized Learning Approaches in Engineering and STEM

Nida Ansari, University of Guelph

Shoshanah Jacobs, University of Guelph

How can we ensure that future global disruptions are addressed in meaningful ways? In Canada, there is increasing concern that engineering students' inclination to memorize to achieve high grades is interfering with meeting societal needs to train creative technical designers. Notably, humanitarian programs such as Engineers without Borders experience a project failure rate of 50% after 5 years of initial completion in communities globally (Witmer, 2022). This statistic raises concerns in the field about the economic impact and loss of such activities, as well as the longevity of proposed engineering solutions. Dr. Witmer established her theory of Contextual Engineering (CE) as a potential response to this high failure rate. As an approach to design, CE emphasizes community context as critical to the successful design, implementation, and functioning of an engineering project.

It is unclear if the current standards and methods of teaching and learning in engineering education allow for the integration and application of CE into students' future decision-making as engineers. Calls for reform to introduce more experiential and transdisciplinary methods in teaching and learning suggest that there is value in evaluating the current academic environment of engineering – notably, what is taught and how students are expected to apply that knowledge – to conceptualize any presence of CE and to determine the steps necessary to further introduce CE into engineering (and STEM) education in Canada.

Thus, our project seeks to understand the current perspectives of engineering students about the value of CE approaches to curriculum and program design. In this presentation, we will present preliminary findings from a survey of ~150 engineering students about their learning experiences within a Canadian institution. This project seeks to contribute valuable insights about the current engineering education climate to better inform, introduce and adapt contextualized education approaches into the engineering curriculum and STEM at-large.

Takeaways:

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

- Describe the key principles of the Contextual Engineering (CE) theory as it relates to engineering education practices.
- Identify the current educational experiences of engineering students as they relate to CE.
- Justify the importance and need for CE and community-inclusive learning experiences for engineering students, as well as their application in other disciplines.

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401b: Co-Design in the Classroom: Students as Knowledge Carriers and Co-Creators*

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

Linda Zhang, School of Architecture, University of Waterloo

Simon Liao, School of Architecture, University of Waterloo

This session explores how Participatory Action Research (PAR) can reshape classroom dynamics, promote active learning, and empower students by placing knowledge ownership in their hands. Conventional architecture design studios often position instructors as the sole knowledge carriers, leading to passive learning. This is exemplified by the widely practiced "desk critiques" format that limits student engagement and reinforces classroom hierarchies. Despite literature on community-engaged teaching, translating PAR principles into architecture classrooms is lacking. Curricular requirements and normative expectations further complicate this integration.

This presentation draws on insights from ARCH 393, an undergraduate architecture studio course designed and taught by Zhang in Fall 2024 at the School of Architecture. This course was structured by two co-design components using the PAR approach: 1. Students co-designed community storytelling sessions with members of Toronto's Chinatown; 2. Students co-designed course curriculum and workshops with their peers and the instructor. Prior to community engagement, students completed TCPS2 ethics training and additional workshops from the instructor focusing on facilitation, expectations, power dynamics, and accessibility. During fieldwork, students actively engaged with community members to create projects driven by community-led memory and narratives, while simultaneously collaborating with peers and the instructor to develop the project scope, schedules, and deliverables. The participatory nature of this course aimed to promote students' empowerment and agency, while positioning them as co-creators of knowledge.

This session presents and discusses the findings on the effectiveness and challenges of integrating PAR in architecture education. The research team employed the Theory of Change framework, which kept track of short and long term outcomes, and mapped logical pathways to achieve them. Outcomes were measured by both quantitative surveys and qualitative interviews and focus groups. This session aims to offer insights into the potential of PAR in fostering a more inclusive and effective learning environment.

Takeaways:

- Understanding Participatory Action Research (PAR) methodologies and their implications: What is PAR? How do we apply it to classrooms to promote students' engagement with communities, their peers, and the instructors?
- Best practices for teaching community engagement: How can we foster a respectful and inclusive research environment when engaging with communities? How can we upskill both students and communities in this process?
- Impact of Co-Design: What are the benefits, challenges, opportunities and limitations of translating co-design principles from community research to the classroom and course design? What are the impacts and limitations of this student learning and engagement?
- Ownership and Legacy: How can we ensure student ownership of knowledge and sustainable, long-term learning beyond the course through methods such as upskilling, leadership development, and legacy planning?
- Knowledge Carriers: How can co-design principles help shift knowledge and expertise from the instructor to the students to create a more empowered learning environment?

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Session 402: Presentations - Self-Directed Learning and Reflection

402a: Using the SLICC Framework to Leverage Uncertainty: A Meta-Analysis of Student-Led Learning in Course Design

Blessing Medon, Centre for Teaching Excellence; Civil and Environmental Engineering, University of Waterloo

Emma McDougall, School of Planning, University of Waterloo

SLICCs are a reflective student-led learning framework that empowers students to design and execute a personalized learning experience (Speirs, et al., 2017). This framework supports students as they develop self-directed learning proficiencies in preparation for the VUCA world (Derby-Talbot & Wonham, 2023; Levy, et al., 2021; Simon & Gavin McCabe, 2017). Since its introduction at the University of Waterloo in 2020, the framework has been incorporated into several undergraduate and graduate courses, demonstrating its adaptability across disciplines.

This session presents a graduate student's insight from her unique experience as a SLICC student, using her project to critically examine the value of the SLICC framework for graduate course design. By embedding SLICCs into her learning experience, the student engaged in a meta-reflective process and identified collaboration, intrinsic motivation and instructor mentorship as drivers of the SLICC process that are fundamental to addressing uncertainty. Based on these insights, the student developed a table that functions as a SLICC integration resource, aligning student leadership with instructor mentorship. The resource supports instructors during course design to assess their course alignment with the framework and offers practical suggestions to enhance or include SLICC principles.

The application of this resource is explored theoretically in two graduate courses that are well suited for the SLICC framework, then further validated through a review of a course at the University of Waterloo that has integrated the framework in its design.

This session provides actionable insights into the potential of SLICCs to foster deeper learning and student engagement (Bovill, et al., 2016). Further, it overviews a valuable resource for understanding the impact of the SLICC framework, offering a structured approach to integrating its principles into course design and delivery.

Takeaways:

- The core principles of the SLICC framework and how they can be applied to challenge conventional learning and anticipate uncertainty.
- Practical strategies for integrating the SLICCs framework using a resource developed from the presenter's metacognitive SLICC experience.

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402b: Evaluating the 'CLEAR' Reflection Process for Deeper Learning: Letting Students Be the Guide*

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

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Alexandria Zielinsky, Experimental Digital Media, University of Waterloo

Andrea Prier, Centre for Work-Integrated Learning, University of Waterloo

In this session, the presenters will share how a research study was designed to allow for students to both shape and test the CLEAR Reflection Process created to support critical, self-reflection as part of work-integrated learning (WIL) experiences. This work began with the need for a common reflective approach for the Centre for Work-Integrated Learning's offerings to support critical self-reflection, as reflection is a key component of WIL.

The preliminary step was to examine models from various sectors, including education, business, and healthcare. This examination revealed the necessity for a new process to help students engage in deep, multifaceted, and impactful reflection while maintaining high-quality Work-Integrated Learning (WIL) standards. As a result, the CLEAR Reflection Process was developed. During its development, experts and practitioners at the University of Waterloo were consulted, but the student voice was missing.

To ensure that the student perspective was the primary driver, additional research involved students in the shaping and testing of the CLEAR Reflection Process. This research aimed to ensure that the developed CLEAR Reflection Process can be easily understood by students, eliciting feedback on the clarity of the language (ease of use) as well as the tool's usefulness in supporting deep(er), multifaceted, impactful reflection.

As a first step, student consultations took place. A graduate student research assistant and the primary presenter interviewed WIL students using a think-aloud interview technique (Nielsen et al., 2002) to capture students in-the-moment thoughts about the process. These 'thoughts' were recorded and analyzed for common themes.

The second step was field testing of the CLEAR Reflection Process. WIL students applied the model in an online professional development course. Afterwards, they shared their experiences via a survey. Two graduate student research assistants, along with the principal investigator, conducted the qualitative data analysis.

Takeaways:

- Explore and learn about the CLEAR Reflection Process and its role in WIL.
- Consider ways of involving students in informing the design and use of learning supports.

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402c: Empowering Capstone Students through Self-Directed Learning, Accountability and Peer Feedback: Insights from SYDE Capstone Courses

Reem Roufail, Systems Design Engineering, University of Waterloo

Richard Li, Centre for Teaching Excellence, University of Waterloo

The Capstone Project for Systems Design Engineering students at the University of Waterloo is a collaborative learning experience where students work in teams with instructors serving mainly as coaches and advisors, which is typical in other engineering programs and schools. [1]. Since capstone is the tool that prepares the students for the transition from school to the workforce [2], several key pedagogical changes were introduced to address students' reluctance to tackle complex projects due to a lack of confidence associated with the disruptions during the pandemic and to foster a more integrated and supportive learning environment. Confidence contributes to creativity, which in turn leads to success in design and technology [3]. The changes adopted are listed below.

Technical Development Modules (TDM): Students participate in 5 of 16 self-selected learning activities over two terms, gaining skills such as prototyping, sensor calibration, iterative testing, communication, material selection, and sustainable design. This approach boosts students' confidence and competence by addressing their knowledge and skill gaps due to the disruptions in the earlier stages of their studies.

Accountability Framework: Accountability not only impacts the project, but it also impacts the team they work with [4]. Therefore, a bi-weekly check-ins with the course coordinator and individual team members ensure continuous project progress and early identification of roadblocks, encouraging critical thinking, timely problem-solving, and community building.

Peer Feedback and Collaborative Learning: Design incorporates critical thinking, which develops effectively if students could give and receive peer feedback [5] Peer evaluation opportunities are integrated throughout the two courses, starting with an Elevator Pitch for proposed projects and two Gallery Walks for feedback on design and prototypes. These activities enhance analytical skills and promote collaborative learning, which helps students to regain valuable social and workplace skills. Sustainability in Design: Several tools are introduced during the design phase to focus on sustainability early on. A Sustainability Café was organized to facilitate expert discussions, enabling students to consider environmental, social, and economic impacts early on and tackle complex real-world problems.

Preliminary feedback on these changes has been positive, with students reporting increased confidence, enhanced skills, and a more integrated approach to sustainability. This case study highlights the value of self-directed learning, structured accountability, and early sustainability considerations in preparing students for the rapidly evolving world.

Takeaways:

- Boosting students' confidence can be achieved by addressing their needs and working alongside them rather than positioning ourselves in front of them.
- Peer feedback is an excellent tool for self-support.
- Holding students accountable can enhance the quality of their work without instilling a sense of threat.

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Session 403: Presentations - Student Communication

403a: Grant Writing Training for Undergraduate Students in Times of Economic Uncertainty*

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

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Farah El-shayeb, Geography and Environmental Management, University of Waterloo

Grant writing skills are increasingly recognized as essential for the career growth of undergraduate students, particularly in environmental and social science degree programs. In current challenging economic times, students face uncertainties about future work particularly those interested in the public and non-profit sectors. Grant writing training can offer core professional skillsets, including critical thinking and teamwork, which can set students apart from their peers in a competitive labor environment. This talk will present research findings from a UW-LITE-funded project that assessed whether grant writing training can improve student motivation and academic performance. The study focused on nearly 200 Faculty of Environment students who were enrolled in an environment and development course (Fall 2024) that had a grant writing assignment component. The results draw from 46 surveys, 15 semi-structured interviews, and 70 Student Course Perceptions surveys.

Research findings show that the grant writing assignment enhanced student motivation and academic performance by offering real-world applicability and opportunities for deeper engagement with course topics. Students explained that the assignment was intellectually stimulating and fostered the development of practical skills, such as budgeting and results-based management, which they deemed valuable for future careers in the public, non-profit, and policy sectors. Learning outcomes from the presentation will offer insights into how interactive learning experiences, such as grant writing training, might provide students with valuable hands-on applied research training to prepare them for a future career in academia or the public-sector.

Takeaways:

- Grant writing training can offer core professional skillsets, including critical thinking and teamwork that can set students apart from their peers in a competitive labor environment.
- This applied-based instructional approach offers valuable hands-on learning that translates research ideas into practical solutions to sustainability challenges while enhancing professional skills development for future careers.

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403b: Exploring Expert and Lay Communication Coursework in an Undergraduate Science Program

Gia Ngoc Han Cao, Western University

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Haoming Tang, Western University

Faraj Haddad, Western University

In the age of the internet and social media, engaging the public with accurate scientific knowledge has become increasingly challenging. The COVID-19 pandemic has highlighted not only the difficulty of communicating science effectively but also the critical need to address scientific uncertainty in ways that build public understanding and trust [1]. These disruptions serve as a powerful driver for change in science education, emphasizing the urgent need to equip future scientists and healthcare professionals with the skills to effectively communicate their findings to diverse audiences [2,3].

Postsecondary institutions are uniquely positioned to respond to this global communication challenge by integrating science communication education into their programs. Indeed, many science courses have successfully lay communication content and assessments into their curricula [4,5,6]. However, no studies to date have investigated the integration of science communication coursework on a larger scale of an entire undergraduate program. In this study, we conducted a comprehensive review of 216 multidisciplinary courses in a large undergraduate medical sciences program in Ontario.

Specifically, we examined the course descriptions, learning objectives, teaching content, and assessments embedded within course outlines. In each of these outline components, we quantified mentions of expert- and layperson-focused science communication, stratifying our data by variables such as year of study and class size. Our study revealed a sparse and scattered focus on science communication, particularly lay communication, raising concerns about the quality of science communication training students are currently receiving and whether it adequately prepares them for life after graduation.

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

- Explain the importance of teaching science communication skills in the face of disruption and uncertainty.
- Assess how science communication is integrated into undergraduate programs, reflecting on their own institutions.
- Compare and evaluate strategies from the literature to enhance science communication education.

Takeaways:

- The sparse and scattered emphasis on science communication training raises concerns about whether current curricula adequately prepare future scientists and healthcare professionals to navigate the challenges of misinformation, public trust, and scientific uncertainty.
- Existing scholarly literature offers numerous strategies, resources, and assessment tools to teach science communication, including well-defined instructional methods and rubrics. These resources can serve as foundational guides to integrate science communication skills into curricula across various disciplines and study years.
- Integrating science communication education into curricula can drive meaningful change by preparing students to effectively navigate and communicate in a world shaped by disruption and uncertainty.

References:

- Ref 1 – Intemann 2023
- Ref 2 – Brownell 2013

- Ref 3 – Stevens 2019
- Ref 4 – Lexis 2021
- Ref 5 – Moy 2007
- Ref 6 – Savory and Coyne 2019

403c: Bridging the Gap from Classroom to Clinic: Strengthening Optometry Students' Communication Skills for Effective Patient Care*

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

Nadine Furtado, School of Optometry, University of Waterloo

Strong communication skills are crucial for all students as they transition into the workforce. For those in healthcare programs, the ability to communicate complex information clearly and effectively to patients across diverse cultural backgrounds and generations, with varying levels of health literacy, is especially critical given the direct impact clinician communication has on patient outcomes. As such, it is crucial for future healthcare professionals to refine their communication skills and hone their adaptability to different audiences throughout their training to ensure they are prepared for effective patient care.

While learning and communication styles may vary across generations, there has been a noticeable decline in students' communication abilities in recent years. Although the causes are likely multifactorial, the lingering effects of the COVID-19 pandemic, particularly the shift to virtual learning, as well as increased screen time, appear to be significant contributing factors. Healthcare programs must offer additional training to bridge these communication gaps and ensure that students can provide the highest standard of care to their future patients.

While most students possess a foundational level of interpersonal and communication skills, healthcare programs must prepare them for patient interactions, which are often more nuanced and complex. We have secured a LITE grant to evaluate the addition of a novel Communication Module to the Optometry curriculum to prepare students for real-world patient interactions. We are in the early stages of our research project and are seeking feedback from the audience to help inform the design of our online module. The proposed online educational module will be introduced to Optometry students in the early stages of the program, before they begin interacting with patients. The objective of this innovative approach is to better prepare Optometry students for success as they transition from didactic classroom learning to patient interactions in a clinical setting.

Learning Outcomes / Goals:

- To examine the learning and communication styles of current and future students.
- To understand the critical role of communication in healthcare and identify barriers to effective communication.
- To explore strategies for integrating communication skills into the curriculum.

Takeaways:

- Communication skills are essential to a healthcare student's success beyond the classroom, as patient interactions directly impact health outcomes.
- The increase in screen time and virtual interactions requires that educators develop strategies for incorporating communication skills into the curriculum.

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Session 404: Presentations - GenAI in Research

404a: Learner Encounters with GenAI: What UX Research Reveals About Student Use and Beliefs About GenAI*

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

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April Pereira, Psychology, University of Waterloo

Daniel Opperwall, Centre for Extended Learning, University of Waterloo

Pia Zeni, Centre for Extended Learning, University of Waterloo

Generative AI (GenAI) is and will continue to have a significant transformative impact on post-secondary education. Effective, ethical, and sustainable adaption and adoption should be human- and learner-centred, grounded in understanding how learners are thinking about and using GenAI. However, students have pointed out "there's a remarkable disconnect between how professors and administrators think students use GenAI on written work and how [students] actually use it" (Terry, 2023). To date, several surveys have been conducted to examine general attitudes across university learners (Welding, 2023; Walczak & Cellary, 2023; Abdelwahab, Rauf & Chen, 2022; Chan & Lee, 2023, Aikins & Kuo, 2023, Touchstone Research 2023), but these studies do not take a deep dive into learner beliefs and experiences with GenAI across contexts (academic, co-op, work) and lack direct observation of learner behaviours and usage. We will report on the results of our LITE funded research, which has enabled us to bridge this gap.

Using a mixed methods design, we surveyed UWaterloo undergraduate students (N = 242, Mage = 20.7, Female = 82%, Full-time = 93%, STEM Major = 46%, Co-op student = 52.1%), which revealed important insights on learners' self-reported beliefs, expectations, trust in, and concerns about GenAI in academics, co-op, and their future careers, and how they think institutions should be responding. In the second phase, we are conducting User Experience (UX) sessions, directly observing how learners use and engage with GenAI when working on academic tasks and assessments. Attendees will gain insight into learner experiences and beliefs around GenAI that can inform learner-centered approaches to incorporate GenAI into teaching and learning, leverage the affordances of GenAI and minimize harms, and consider ways to support the development of GenAI literacy that can help learners make better choices with these tools.

Takeaways:

Our research results

- Reveal some of the tasks and conditions under which students are using GenAI and believe it is acceptable and beneficial (or not) to use GenAI in academic and co-op contexts.
- Suggest that students have some concerns and awareness around the limitations of GenAI, but they would benefit from more clear communication around how and when to use GenAI in academics and co-op.
- Point to some targeted areas where students feel the institution and instructors could be providing more support, communicating expectations and policies, and policing GenAI use.

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404b: Enhancing Student Engagement with an AI-Powered Virtual Teaching Assistant: Leveraging Retrieval-Augmented Generation for Active Learning*

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

Haoran Zhu, Cheriton School of Computer Science, University of Waterloo

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

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

Advancements in artificial intelligence bring new opportunities to enrich teaching and learning experiences. In this session, we present updates on "Oliver", a LITE-grant funded project designed to promote active learning and critical thinking among students as a virtual teaching assistant. Unlike traditional AI models that often provide direct answers, Oliver uses an advanced technique combining information retrieval and generation to provide responses tailored to course-specific materials. This approach ensures that students are guided toward deeper understanding by encouraging exploration rather than receiving direct answers.

This session demonstrates how AI can effectively promote higher-order thinking skills and student engagement in learning environments, which aligns with the conference theme of integrating technology to enhance education. We will also explore how Oliver's method surpasses traditional generative AI models like Chat-GPT in educational contexts while addressing the challenge of its conversational memory depending heavily on background information.

The presentation references current literature on AI's role in promoting cognitive engagement and contextual understanding as well. Oliver compares the similarity scores across multiple pieces of stored information, it reflects Oliver's capability to find and leverage relevant information effectively and emphasizes Oliver's strength in educationally beneficial and contextually relevant interactions. Our methodology for evaluating Oliver's effectiveness was that we collected over 100 interactions from live classes. Student queries were categorized using Bloom's Taxonomy to assess cognitive levels, and Oliver's responses were compared to those of a standard generative AI model, focusing on relevance, accuracy, and the promotion of active learning.

By the end of this session, participants will be able to understand how a virtual teaching assistant with similarity scoring like Oliver can enhance AI interactions in educational contexts, and identify challenges and solutions related to implementing AI systems that leverage course-specific materials for personalized learning experiences or even consider practical applications in your own teaching practices!

Takeaways:

- To leverage AI in developing tools to support learners in inquiry-based learning, tutoring and scaffolding. To implement conversational memory to increase student engagement by adapting questions, answering and dialogue.

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404c: Leveraging AI for Personalized Learning and Practical Skills Development

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

In the rapidly evolving landscape of education technology, the integration of Artificial Intelligence (AI)-powered tools represents a significant advancement in enhancing teaching and learning experiences. These tools provide realistic, interactive simulations that prepare students for real-world challenges (National Education Association, n.d.). Silver (2023) highlights that AI and large language models, such as ChatGPT, are set to disrupt education substantially, with the industry currently unprepared for these changes. Liu et al. (2024) discuss how generative AI enables adaptive educational simulations, creating personalized learning experiences and providing tailored feedback.

To support students in developing their interviewing skills, we piloted AI-simulated mock interviews for practice and as an assessment in a graduate-level WIL course (WIL 601 Career Foundations for Work-Integrated Learning within the Centre for Work-Integrated Learning). We used Instage, an AI-powered platform which is designed to enhance communication and interviewing skills through interactive simulations (InStage, n.d.). In the practice mode as well as the assignment mode, students engage in interviews with a virtual AI avatar acting as the interviewer, receiving immediate post-interview feedback and automatically generated grades. The results of our pilot show increased student engagement (a 34% increase in submission rate compared to the previous offering) and positive feedback from students.

In this session, we will share and discuss:

- The platform evaluation process we used (based on well-established instructional design and heuristics frameworks) and its importance for selecting an educational technology tool;
- Instructional design considerations for use of AI to increase student engagement and encourage practice as well as authentic evaluation;
- Results from our pilot offering regarding student engagement, perceived usefulness, quality and quantity of feedback, and actionable areas for improvement; and
- Current use of this platform and future applications.

Takeaways:

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

- Understand how instructional design and heuristic perspectives can be considered when evaluating AI Ed Tech
- Consider using interactive simulations to increase student engagement and encourage practice
- Discuss the benefits and challenges of integrating AI-powered educational tools with learning management systems
- Discuss various considerations if they decide to use GenAI in their assessments.

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Artificial Intelligence Disclosure:

Artificial Intelligence Tool: Microsoft Copilot (University of Waterloo institutional instance); Writing – Review & Editing: Microsoft Copilot was used for proofreading

Session 405: Presentations - Assessment

405a: Updating Our Courses with Purpose Through Backwards Design

Nathalie Moon, University of Toronto

In this presentation, I will discuss how the backwards design framework (Wiggins and McTighe, 2005) can serve as a strategic tool to navigate changes in higher education while remaining true to one's core pedagogical values (Denial, 2024). Drawing from personal experience returning to in-person teaching in 2024 after an extended absence from the classroom due to pandemic disruptions and maternity leaves, I will demonstrate how this approach helped me update my courses by:

1. Updating learning objectives to be more reflective of the current realities of LLMs and genAI
2. Embedding UDL principles,
3. Designing learning activities and authentic assessments for students to develop and demonstrate their mastery.

The backwards design approach provided a framework to evaluate each course holistically, questioning the purpose and effectiveness of each component while considering the reality of students' lives - including their other responsibilities (Wladis et al, 2024), the technological landscape they navigate (Pratschke, 2024; Tillmanns et al., 2025), and the lasting impacts of pandemic disruptions on learning. By sharing concrete examples from my own course transformation process, this presentation will provide attendees with both theoretical grounding and practical tools for implementing backwards design in their own teaching contexts to prepare for and respond to ongoing changes in the post-secondary educational landscape.

Participants will:

- Learn about the theoretical rationale for backwards design.
- Understand how the backwards design framework can be used to navigate major disruptions in teaching and learning.
- Evaluate the alignment of current learning objectives with students' evolving needs and the integration of emerging technologies.

Takeaways:

- Major disruptions such as the pandemic and the proliferation of genAI tools have fundamentally shifted what students need to learn and how we should assess their mastery
- When faced with major disruptions, start by re-examining your core learning objectives rather than trying to adapt existing activities or assessments.

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405b: Experiments with Ungrading: Self-Assessment and Student Learning

Nancy Worth, Geography and Environmental Management, University of Waterloo

This presentation shares my experiments with ungrading, a pedagogy that decentres grades assigned by an instructor, and prioritizes students' deep learning and skill building (Stommel 2023). Ungrading asks us to consider what and who learning is for, while also acknowledging that in many contexts a grade is still required. I tentatively began using reflective self-assessment for engagement grades, valuing student assessments of their own learning, but having substitute factors like attendance scores or discussion board post counts to modify student assessments as appropriate—and I learned that this was rarely required, as students had a clear sense of their contributions, or at times under rather than overestimated. Most recently, I've applied the principles of ungrading more fully to a portfolio of tutorial activities in a second year Economic Geography class. Students chose activities to complete, followed their own content interests within the skill focused assignments, and self-assessed their own work with a reflective cover letter at the end of term that prioritized metacognition (Craig et al 2020), but also included a numerical grade. This approach exists within a course that has a final exam, but using a portfolio model and student grading aims to balance the intensity of the course.

The presentation centres two areas of discussion, first: how does ungrading help us 'critically leverage GenAI'? In my example, students were able to use GenAI as a research tool, but not for composition. Rather than the instructor policing its use, ungrading moves this power to the student, with diverse results. Second: how does ungrading impact student engagement? Again, there are multiple responses—some students question if their self-assessment will be unchallenged, while others are overly harsh against their own work. The metacognitive framing of ungrading really matters, as does validating, rather than interrogating self-assessment.

Takeaways:

- Self-assessment can increase students' ownership and agency about their learning.
- Self-assessment can initially feel uncomfortable, and discussion about expectations from students, TAs and the instructor can help everyone find their way.
- Self-assessment, and ungrading more broadly, reframes expectations of learning with/out GenAI, as the emphasis moves from academic integrity to what students value for their own learning.

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405c: Thriving in Disruption: Leveraging PebblePad for Transformative Learning through Reflection, Assessment, and Feedback

Gail Ring, Pebble Pad

Today's rapidly changing, sometimes chaotic, and often unpredictable world demands that we 'think differently' about our teaching, learning, and assessment practices. This presentation explores how PebblePad's learning journey platform can help address emerging global trends arising from disruption and uncertainty, trends such as experiential and work-integrated learning, program level assessment, and development of students' transferable skills and life-long learning capabilities.

We'll examine how PebblePad templates and workbooks can scaffold deep reflection providing opportunities for students to pause, interrogate, and integrate learning experiences both within and beyond the classroom. In addition, we'll review how learning portfolios can help students develop critical thinking, problem solving, creativity and emotional intelligence as they compile, curate and showcase personally meaningful evidence of their growth and learning over time. Enhancing these skills in the wake of GenAI is now more important than ever.

We'll discuss how PebblePad can facilitate the provision of feedback ***for*** learning through formative feedback, peer review and self-assessment. PebblePad supports rich feedback loops embedded in authentic assessment practices, helping students take ownership of their learning. The platform's comprehensive data reporting capabilities provide valuable insights into student performance and engagement, enabling programmatic assessment that evaluates both individual progress and curriculum effectiveness. This data-driven approach allows educators to integrate assessment ***of*** learning and assessment ***for*** learning, informing instructional improvements to enhance student outcomes.

Combined with good course design, PebblePad supports transformative reflection, assessment and feedback strategies that enhance student learning. It can help instructors and students cope, adapt and respond to today's disruptive and uncertain environment with the hope of not just surviving, but thriving.

Session 406: Panel - Does Critical Race Theory Still Matter? "Doing" Critical Race Theory in a Time of Dissent*

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

Laura Mae Lindo, Philosophy; Gender and Social Justice; Black Studies, University of Waterloo

Remi Chort, Undergraduate Student, GSJ, Family and Relationships Program, University of Waterloo

Theodore Thompson, Undergraduate Student, Biology, University of Waterloo

Tobechukwu Joshua Ohaka, Doctoral Student, Chemical Engineering, University of Waterloo

Alacia Tshilombo, Practicum Placement Student, Masters of Social Work, Wilfrid Laurier University

Dolapo Ojo, Practicum Placement Student, Masters of Social Work, Wilfrid Laurier University

Keyana Mullings, Undergraduate Student, Honours Arts and Business, University of Waterloo

For decades anti-racist educators have argued that without deliberate and intentional attention, classrooms will never truly become anti-racist. Today, as we navigate an upsurge of overt, highly politicized attacks on critical race theory (CRT) and questions about the benefits of culturally relevant pedagogies (CRP), many anti-racist pedagogues within the post-secondary sector face a troubling climate in which to continue "doing" anti-racist work. But what exactly does this work look like in practice?

In 2024, given limited scholarship on the application of CRT and CRP on Canadian university campuses (Aylward, 1999; Henry, 2017, 1993; Ladson-Billings, 2021a, b), and in light of growing criticism about how, when, and why race is engaged in post-secondary classrooms at all (Jivani, 2022; Swift, 2022; Weidner, 2022), a project was developed to explore this question. Looking specifically at the Gender and Social Justice (GSJ) program at the University of Waterloo (UW), the *"Doing" Critical Race Theory* project, funded through the UW's Learning Innovation and Teaching Enhancement (LITE) grant program, examined how GSJ instructors teach about race.

While the Principal Investigator for the project will moderate the panel, the goal of this session will be to center student voices in a discussion about what it does (and could) look like to put CRT and/ or CRP into practice in classrooms during times of uncertainty and disruption. Thus, using the GSJ program as an example, the panel will be made up of six student researchers (3 undergraduate and 3 graduate students) who will present their findings over the course of this project.

Takeaways:

- Attendees will begin to consider why intentional strategies to incorporating race in their respective disciplines matters.
- Attendees will hear directly from students to understand (a) the impact of CRP on student learning (b) the impact of social and political realities on what students perceive to matter in classrooms.
- Attendees will examine how, if, and when climates of disruption and uncertainty have been used as a driver for change over the courses of GSJ's evolution.

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Session 407: Workshop - Climate Pedagogy Practices in Higher Education*

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

Jerika Sanderson, Waterloo Climate Institute, University of Waterloo

Michèle Martin, Waterloo Climate Institute, University of Waterloo

Steffanie Scott, Geography and Environmental Management, University of Waterloo

Nadine Ibrahim, Civil and Environmental Engineering, University of Waterloo

The climate crisis has created a world where uncertainty about the future is being woven into the fabric of our lives. Research shows that young people across Canada and around the world are experiencing complex emotions around climate change; they are worried about climate change and their future (Hickman, 2021, Galway & Field, 2023) and want to learn how to address it within the context of their chosen discipline (Leal-Filho, 2010).

This is prompting many universities to rethink their curriculum and its relevance to the climate crisis as well as other challenges facing the world, albeit with varying success (Henderson et al., 2013; Leal-Filho et al, 2023, MacKenzie & Chopin, 2022; McGowan, 2020; Molthan-Hill et al., 2019). A recent LITE-funded study undertaken by the Waterloo Climate Institute to investigate climate pedagogy approaches by post-secondary instructors in Waterloo Region, highlights the need to teach climate change in an authentic way that inspires shifts in students' worldviews and results in meaningful action. It also calls for interdisciplinary and collaborative approaches within courses, at program level and at institutional level.

The study highlights a number of successful teaching/learning strategies that instructors from across diverse disciplines use, such as bringing in guest speakers, taking students outdoors, collaborating with community partners and giving them opportunities to explore authentic climate actions through project work. The study also highlights how institutions can support climate education and professional development of instructors.

In this interdisciplinary workshop session, after a brief introduction to the study, participants will be invited to collaborate in a series of activities related to the findings and recommendations. These will include a gallery walk to respond to key barriers identified in the study, and participating in practice scenarios and visioning to explore strategies to overcome barriers and work towards systemic change. Learning outcomes for this interactive session include:

- Improved understanding of the benefits of effective climate change education to student well-being, the environment, and the university more broadly
- Collaborative exploration of climate pedagogy strategies that can be applied to courses and programs
- Networking and community building across disciplines and departments to support climate and sustainability education

Takeaways:

- Climate pedagogy is the set of theories and practices instructors use to engage their students in authentic learning and action in response to the climate crisis
- Instructors representing diverse disciplines in post-secondary institutions in Waterloo are exploring ways to teach climate change / action authentically, despite multiple barriers
- Collaboration between instructors from across disciplines and institutions can enrich climate pedagogy and help overcome institutional barriers

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Session 408: Workshop - Thinking on Your Feet: A Dynamic Teaching Strategy to Improve Confidence and Innovation

Alyssa Vanwyck, Recreation and Leisure Studies, University of Waterloo

Rebecca Zehr, Psychology, University of Waterloo

Bringing improv into the classroom is a dynamic and powerful teaching tool used to promote deep learning and strengthen confidence, presence and morale among students (Berk & Trieber, 2009). This practice-based workshop will be centred around strategies for responding to disruption and uncertainty and include improvisational exercises focused on improving agility and innovation. Improv builds human resources for students such as enhanced collaboration, relationship skills, creativity, critical thinking, and adaptability (Benjamin & Kline, 2019; Watland & Santori, 2014). Workshop participants will have a chance to think on their feet and experience flexible improvisation strategies that can used in their own teaching practices.

Applied improv is an emergent process with non-actors that uses quick thinking skills that can be applied to the challenges of everyday life (Friedman, 2021). Participants will hear how a course was redesigned to include applied improv in response to a loss of connectedness and increased anxiety seen from the COVID-19 pandemic. Improv has the power to sustain and/or restore our day-to-day behaviour and shape our social realities (Friedman, 2021). This adaptive teaching method addresses the skill gap of lost in-person connection and allows students to practice improvised interaction in a low-stakes, safe environment. In light of the social disruption caused by the pandemic, improv can be used to provide a means to reconstruct how we face disruptions and uncertain times. Basic principles of applied improv include things like attention and contact, spontaneity and intuition, and co-creation and can be used in a variety of disciplines to improve collaboration, flexibility, leadership and communicative competence (Schinko-Fischli, 2018). Using improv in the classroom can help students cope with uncertainty by developing a “yes, and!” mindset and provide them the opportunity to develop leadership skills, improve their presentation skills, and translate skills beyond the classroom to prepare them for their future careers.

Takeaways:

We hope that participants are inspired to explore improvisational exercises with their own students in order to experience the many benefits that improv has to offer.

Specifically:

- Improv used in higher education promotes confidence and creativity and provides transferrable skills such as communicative competence, empathy, and collaboration
- Improv uses the skill of presence, which includes active listening and mindfulness. Practicing presence allows students to trust their ability to contribute without overthinking and reduces social anxiety
- Improv strategies can be brought into any learning environment

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Poster Session (500): Thursday, May 1 (5:20pm – 6:20pm ET)

Poster Presentations

501: Open Educational Resources: A Cost-Effective Digital Inclusive and Innovation Approach to Empowering People with Disabilities

Munir Moosa, World Institute on Disability

Around 1.3 billion people worldwide have a significant disability. Higher education accessibility continues to be one of the biggest hurdles for individuals with disabilities due to socio-cultural barriers, accessibility barriers, higher cost of education, lack of availability of inclusive resources, attitudinal barriers, and gaps between policies and interventions (UNESCO, 2018; UNESCO, 2024; United Nations Department of Economic and Social Affairs, 2024). They also have lower digital skills due to the digital divide, which makes it challenging to access resources and continue skills development (ILO, 2022). Open Educational Resources (OER) are "learning, teaching and research materials in any format and medium that reside in the public domain or are under the copyright that has been released under an open license, that permits no-cost access, re-use, re-purpose, adaptation and redistribution by others" (UNESCO, 2024). It disrupts traditional education by reducing costs and increasing accessibility, addressing uncertainties in learning opportunities for people with disabilities.

This study aims to identify good practices in using OER for or by individuals with disabilities and explore barriers to its effective implementation. The research has adopted a semi-systematic literature review. Data on OER good practices are gathered around usability, creation, and initiatives for or by people with disabilities. In contrast, barriers faced by people with and without disabilities are gathered. Data is analyzed using thematic analysis. OER can enhance learning experiences and educational accessibility, foster creativity, and enable collaboration. There is little evidence of active participation by individuals with disabilities in creating or adopting OER, partly due to a lack of exposure and documentation. Although a few initiatives have sought to develop accessible platforms, they remain limited in scale and impact. Barriers include a lack of awareness, lack of motivation, limited language diversity, digital poverty, limited repositories, copyright issues, limited accessibility, limited localization of OER content development, and issues related to compatibility, quality, and sustainability.

Overall, OER can provide accessible materials tailored to the needs of people with disabilities, enhancing inclusivity in education. It can allow them to create contextual resources as active knowledge contributors. Communities in low-income areas can benefit from reduced barriers to learning through free educational content. Addressing the highlighted challenges through inclusive design and large-scale initiatives could significantly enhance the role of OER in supporting the disabled community. OER can be a driver of change for all students with and without disabilities. They can share their ideas globally through open platforms and collaborate to develop innovative resources and policy recommendations.

Takeaways:

- OER can provide accessible materials tailored to the needs of people with disabilities, enhancing inclusivity in education. It can also give people with and without disabilities a platform to create contextual resources as active knowledge contributors. Communities in low-income areas benefit from reduced barriers to learning through free educational content.

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502: Creating Inclusive Learning Environments: A Student Pedagogical Partnership to Evaluate the Design of Blended Learning in Graduate Professional Education

Valerie Chong, Western University

Michelle Gleason, Western University

Nancy Knyf, Western University

Erin Moorhead, Western University

Courtney Schnurr, Western University

Jordan Smith, Western University

Meghan Stewart, Western University

Pam McKenzie, Western University

Overview: The COVID-19 disruption has brought attention to the possibilities of designing online and blended learning environments to maintain and increase student engagement and support. This poster evaluates redesign of two professional master's courses for effective and inclusive flipped-classroom blended learning. The redesign is rooted in Universal Design for Learning (UDL), an approach that seeks to design learning experiences to eliminate barriers, proactively respond to learner variability, and support the development of learner autonomy (CAST, 2025), supplemented with culturally responsive, anti-racist, and decolonial frameworks (e.g., Kearney, 2022) and other student-centred approaches (e.g., Denial, 2024).

Methodology: From January-April 2025, we are evaluating the redesign through a student pedagogical partnership (Cook-Sather, 2022) comprising the course instructor and eight professional master's students who have previously taken or been exempted from the courses being redesigned. Our analysis is in progress. We began by completing individual autoethnographic reflections on our experiences as learners and as teachers in whatever context: what we believe is the purpose of education, what we value, what frames of reference shape our experiences, what educational exclusions and inclusions have we have experienced, witnessed, dreamed, or enacted. We will qualitatively analyze these reflections (Nathan and Perreault, 2018) to identify and prioritize themes that will structure our evaluation of the courses.

The data we will analyze include course content in the Learning Management System; course outlines, reading lists, and other official documentation; instructor planning notes for the synchronous classes including blank templates and learning tools; weekly autoethnographic instructor reflections about the Winter 2025 course offering; our reflections on teaching/learning in the courses being evaluated; and our reflections on using a student pedagogical partnership as an equitable and inclusive strategy for evaluating equitable and inclusive course-based learning. Our poster will share our preliminary findings.

Takeaways:

- A brief review of research and pedagogical literature on inclusive online/hybrid instructional design in professional graduate education
- Findings and recommendations for inclusive online/blended instructional design in professional graduate education
- A case study of a student pedagogical partnership in inclusive instructional evaluation

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503: Undergraduate Students' Perceived Changes in Learning- And Attention-Related Experiences During COVID-19

Emilie E. Caron, Psychology, University of Waterloo

Allison C. Drody, Psychology, University of Waterloo

Jonathan S. A. Carriere, Bishop's University

Daniel Smilek, Psychology, University of Waterloo

This study employed self-report measures to document how UW students (N analyzed = 191) perceived their learning- and attention-related experiences (i.e., attention, affect, and time perception) to have changed throughout the pandemic. Students were asked to compare their current experiences (measured April 2022) to recollections of their experiences from three critical timepoints: (1) before the pandemic restrictions (Pre-restrictions), (2) immediately after implementing the restrictions (Early restrictions), and (3) immediately after lifting the restrictions (Post-restrictions). Students predicted how these experiences might change in the future. Each item began with: "Relative to your experiences in other semesters", and included one timepoint references (e.g., Pre-restriction items: "BEFORE COVID-19 prevention measures were implemented (i.e. March 2020)"; Early restriction items: "AFTER COVID-19 prevention measures were implemented (i.e. March 2020)"; Post-restriction items: "IMMEDIATELY AFTER the COVID-19 prevention measures were lifted (i.e., during/after March 2022)"). The items included one of several descriptive statements such as "how has your ability to focus while studying changed?". The future prediction questions were: "Relative to your experiences with the current state of the COVID-19 pandemic, how much do you think your [attentiveness/motivation/mental health] will change within the next few months?". Students perceived reductions in their attention, affect, and time perception when reflecting on and comparing their current learning-related experiences to their remembered pre- and early restriction learning-related experiences. They also perceived their attention and affect to decrease even as the restrictions began to lift, though there were attenuations to these reductions. Regarding their future, students were optimistic that their learning-related experiences would improve in the coming months. These findings can inform approaches targeting the improvement of attention, affect and productivity in learning and performance-based environments. We discuss the present findings in the context of retrospective versus in-the-moment experiences, and other recent findings about the impact of pandemic interventions on learning.

Takeaways:

- The Covid-19 pandemic had a significant negative impact on student's learning- and attention-related experiences.
- Documenting students' relative judgements of change during the Covid-19 pandemic can contribute to better understanding students' experiences during a distinct moment in history that cannot be studied again.
- Beyond this, findings from this study are critical as they highlight specific aspects of life where students felt significantly impacted. These findings can therefore help inform and improve methods for reducing the impact of future global crises on students' learning- and attention-related experiences. Suggestions for reducing the impact of global crises on students' learning experiences will be discussed.

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504: PULSE (Pathology Undergraduate Learning and Study Environment): Exploring Students' Perspectives on and Usage of Artificial Intelligence

Jenna Orsava, Western University

Background: Artificial intelligence (AI) tools are becoming increasingly integrated into higher education. Hence, there is a growing need to understand how students utilize these technologies. While research on AI in education often focuses on its potential to personalize learning opportunities or automate administrative tasks, less attention has been given to how students interact with AI tools and their perceptions of how AI can support them in their academic pursuits. Therefore, this study explores how and why undergraduate students opt to utilize AI for educational purposes.

Methodology: Undergraduate students enrolled in an introductory pathology course at Western University created novel learning materials as part of the course requirement. Students were given the freedom to use AI tools to complete the assignment. Students were also required to submit a written report that explained the creation process, including how/why they utilized AI, the innovative aspect of their creation, and the opportunities and challenges they faced to complete the assignment. Additionally, students were invited to complete an anonymous online survey and participate in a focus group to share further insights into their experiences working with AI tools.

Learning Outcomes: AI integration in higher education is inevitable, and thus, it is important to study students' perspectives on AI usage. Our preliminary findings indicate ChatGPT as a favourable tool for generating study materials, including content summaries, flashcards, and test questions, due to its user-friendly features. On the flip side, some students decided against using AI, as the tools were considered 'unreliable'. This study on students' usage of AI can inform educators about students' current levels of AI literacy, thus influencing how they guide student engagement with AI. With effective guidance, AI can act as a positive contributor to undergraduate education, helping students strengthen their digital literacy and become equipped to succeed in a constantly evolving technological world.

Takeaways:

- Our preliminary findings indicate ChatGPT as a favourable tool for generating study materials, including content summaries, flashcards, and test questions, due to its user-friendly features. On the flip side, some students decided against using AI, as the tools were considered 'unreliable'.
- With effective guidance, AI can act as a positive contributor to undergraduate education, helping students strengthen their digital literacy and become equipped to succeed in a constantly evolving technological world.

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505: Adapting to the AI Era: The Evolution of Master Adaptive Teachers in the Digital Landscape

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Fabiana Crowley, Western University

Harrison Banner, Western University

Tammy Symons, Western University

Gildo Santos, Western University

Lorelei Lingard, Western University

Sayra Cristancho, Western University

The rapid expansion of artificial intelligence (AI) has added new layers of complexity to higher education, creating both opportunities and challenges for educators. For medical sciences faculty, the integration of AI intersects with existing disruptions such as the pandemic skill gap, expanded workloads, and the ongoing imperative to prioritize equity, accessibility, and inclusion. These factors demand resourcefulness, adaptability, and resilience in navigating a teaching landscape defined by contingency and uncertainty.

This study investigates how medical sciences educators adapt their teaching practices in response to AI integration and explores the influence of discipline-specific "signature pedagogies" on their approaches. Drawing on Shulman's pedagogical framework and master adaptive learning theory, the research uses a descriptive qualitative methodology, including surveys and interviews, to capture faculty perspectives and identify strategies for effective adaptation amidst crises. At the time of this conference, we are hoping that our survey results will be completed and can be discussed.

The outcomes of this study aim to provide a practical framework for leveraging AI as a tool for innovation while respecting the pedagogical traditions unique to medical education. By addressing challenges such as academic integrity concerns and the digital divide, the research emphasizes the need for bold and unconventional strategies that prioritize well-being, build community, and foster a shared culture of teaching and learning. In doing so, it offers insights into supporting educators and students as they navigate disruptions and embrace the transformative potential of AI, aligning technology with the evolving realities of university pedagogy.

Learning Outcomes:

1. Discuss the intersection of AI integration with signature pedagogies to navigate teaching disruptions effectively.
2. Share experiences about adaptive teaching strategies that balance technological innovation with equity, accessibility, and inclusion.
3. Brainstorm system changes that support faculty and students to build resilience and community in an evolving educational landscape.

Takeaways:

- Ideas for AI Integration in Teaching: The poster provides barriers and ideas for integrating artificial intelligence into higher education, tailored to the unique needs of medical sciences educators and informed by discipline-specific teaching practices.
- Building Community and Capacity: The research highlights the importance of fostering collaboration and support systems among faculty and students to address challenges such as increased workloads, the digital divide, and the ethical considerations of AI use in education.

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506: Using Q-Methodology to Evaluate Digital 3D Tools in Anatomy Education Across Student Populations

Sidney Wright, Western University

Katelyn Wood, Western University

Anatomy is challenging for students to learn but is essential for future healthcare professionals. Cadaveric dissection and prosections remain the gold standard for teaching anatomy, but ethical concerns, maintenance costs, and limited availability pose challenges. While plastic models offer a more widely available alternative, they may lack anatomical accuracy. These limitations, alongside the rise of remote learning, have increased interest in alternative teaching methods such as digital three-dimensional (3D) models. 3D digital models enhance student knowledge gain and engagement; however, research guiding best practices and uses in anatomy education is limited. Using Q-methodology, this study investigates which student population benefits most from integrating digital 3D models into an undergraduate anatomy curriculum. Q-methodology systematically examines participants' viewpoints by having them rank a series of statements based on their opinions into structured distributions called Q-sorts, which are analyzed to identify emerging factors. Undergraduate anatomy students from Western University's Faculty of Health Sciences (FHS) and Department of Anatomy and Cell Biology (ACB) were recruited to participate in a laboratory session using the digital tool Visible Body (VB). Each student ranked 35 statements into a Q-sort regarding their opinions on using VB in the laboratory session and their learning preferences. Inverted factor analysis then identified two distinct perspectives per discipline. ACB students formed *improvement enthusiasts* (n=4) and *anatomy enthusiasts* (n=4), while FHS students formed *group-work enthusiasts* (n=6) and *interactive learning enthusiasts* (n=4). Overall, both groups responded positively to VB, indicating broad acceptance of digital models. Students with a stronger interest in anatomy found VB particularly useful, suggesting digital models are more beneficial for those already engaged in the subject. By leveraging the strengths of digital models, educators can create a more effective, engaging, and comprehensive learning experience that is adaptable to disruptions and uncertainties, ultimately improving anatomy education practices.

Takeaways:

- Q-methodology can identify groups of students with shared perspectives regarding the use of digital 3D anatomical models, providing insight into how digital technologies can be best implemented into anatomy education.
- Student populations with a strong interest in anatomy may benefit from the integration of digital 3D tools into undergraduate anatomy education, highlighting the benefit of tailored instructional approaches.

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507: Teaching Science Students Lay Communication Through Coaching and Feedback – An Interdisciplinary Approach Led by Communication Graduate Students

Tyler Dong, Western University

Erin Isings, Western University

Faraj Haddad, Western University

In today's news and social media landscape, science misinformation has become widespread (Vosoughi et al., 2018). Combined with the challenges of communicating scientific research, public trust in science is becoming increasingly more fragile (Kennedy & Tyson, 2023). Postsecondary institutions are crucial in addressing this issue by teaching lay communication and public engagement skills. However, current approaches to teaching these skills rely solely on scientists, with little input from communications experts.

Our research project involved an innovative collaboration between science and communications faculties. Specifically, our objectives were to (1) design and implement a lay communication workshop and assignment for an undergraduate science class led by communications and journalism graduate students, and (2) investigate the effectiveness of the collaboration by surveying participants' perceptions and experiences.

Communications and Journalism Graduate students developed and hosted a 1-hour workshop for 3rd-year undergraduate Medical Science students. After the workshop, the science students completed an assignment where they produced a science communication piece in a format of their choosing. Both groups of students were surveyed before and after the workshop to answer the following questions:

1. How do students perceive the importance of science communication to the public, their careers, and their own learning?
2. How useful were the workshop and assignment for learning/teaching science communication and how can this teaching innovation be improved?

Enrollment was voluntary, with participants recruited through their course websites. Currently, 14 students are enrolled, with more participation expected by the time the project is completed in April 2025. Preliminary results show that both students view science communication favourably but lack prior experience with learning and teaching communication.

After this session, attendees should be able to reflect on the relevance of lay communication for their disciplines and use methods and evidence presented in the study to incorporate similar interdisciplinary projects into their curricula.

Takeaways:

- Postsecondary institutions are important in addressing science misinformation by teaching scientists lay communication and public engagement skills, but current teaching often does not incorporate the advice of communication experts.
- Interdisciplinary teaching collaborations can facilitate the development of communication skills across different courses, education levels (graduate vs. undergraduate), departments, and faculties

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508: Reimagining Proctoring Exams: From Academic Integrity to Student Support

Mary Robinson, Dean of Engineering Office, University of Waterloo

Sarah Meunier, Chemical Engineering, University of Waterloo

Katherine Idzik, Engineering Undergraduate Office, University of Waterloo

Exam invigilation or proctoring has historically focused on ensuring that rules are followed to protect academic integrity. The shifts between online and in-person invigilation disrupted standard practices, and brought into sharp focus some of the gaps in proctor training and resources. This presents a call to interrogate and reimagine our practices.

Until recently, the University of Waterloo's Examination Procedures Manual for Academic Proctors indicated that a minimum of one male and one female proctor is required in each examination room of up to 50 students and that food is prohibited. Little attention is paid as to how proctors are to manage student stress, distress, mental health, and diversity outside of clinically diagnosed and documented concerns.

Some examples of challenges include students who are in need of a break from the high-stress exam environment without actually requiring a washroom break, and students requiring to be gendered for washroom breaks despite a significant portion of our community identifying as non-binary. Applying a student-wellness lens, academic proctors can play an important role beyond simply taking students to and from the washroom.

We propose that appropriately trained academic proctors can create an examination environment that is less stressful and safer for both students and proctors.

In the Fall 2024 term, student-support proctors received additional training, including de-escalation strategies and tools to support students in an exam setting. This new subset of trained student support proctors was piloted during the final exam period for a few large, first-year engineering courses.

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Takeaways:

- The student body has changed with respect to mental health and diversity. In an exam setting, this effects both the students and invigilators.
- Additional training can be provided to exam invigilators to provide them with the skills to handle non-academic situations.
- Broader training, including aspects of student-wellness practices, has positive effects on student, proctor, and instructor well-being.

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509: Disruption on the Horizon: Exploring the Impact of the University of Waterloo's Childcare Landscape on Teaching Effectiveness

Ana Crisan, Cheriton School of Computer Science, University of Waterloo

Nasser Mohieddin Abukhdeir, Chemical Engineering, University of Waterloo

Brendan Riggin, Recreation and Leisure Studies, University of Waterloo

Megan Salinger, English Language and Literature, University of Waterloo

Heather Love, English Language and Literature, University of Waterloo

Mary Robinson, Dean of Engineering Office, University of Waterloo

Accessible and affordable childcare is a significant, yet often overlooked, driver of disruption and uncertainty in academia (Comer & Stites-Doe, 2006; Gabriel et al., 2022; Kossek et al., 2021). For faculty in higher education, particularly those with young families, childcare challenges directly affect their ability to return to work and the quality of teaching (Van Egdom et al., 2024). Faculty members have reported delaying their return from parental leave, turning down job offers, or reducing their teaching loads due to insufficient childcare options, exacerbating institutional inequities and intensifying workloads for colleagues (Piszczek & Berg, 2014).

The Canada-Wide Early Learning and Child Care Act has decreased the financial burden for families; however, the increased demand for affordable childcare has resulted in longer waitlists and decreased availability of spots. For example, at the University of Waterloo's Bright Starts Early Learning Centre, there are over 1,000 children on the waitlist for just 179 spots, with some parents waiting over two years to secure care. This represents a stark contrast to earlier years, when UW faculty members, staff employees, or graduate students could be reasonably confident in securing a spot for their child in the Brights Starts infant room by the end of a year-long parental leave.

To address these growing challenges, the Faculty Association of the University of Waterloo (FAUW) Childcare Working Group has launched a survey to understand the scope and depth of childcare-related issues among faculty, staff, and graduate students. The survey seeks to explore how access to childcare—or the lack thereof—impacts teaching effectiveness and overall well-being within the university community.

This poster will present preliminary findings from the survey alongside recommendations for institutional strategies to mitigate these disruptions. By recognizing childcare access as a critical factor influencing faculty performance, universities can develop bold, innovative solutions to ensure equitable, sustainable teaching and learning environments amidst ongoing disruption and uncertainty.

Takeaways:

- the landscape has significantly shifted over prior years, creating significant workforce disruption
- a lack of adequate childcare is widespread among faculty and staff and impacts hiring and retention
- Junior faculty are disproportionately impacted

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510: Evolutions in Educational Technology: Supporting Change and Mediating Disruptions

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Kyle Scholz, Teaching Innovation Incubator, University of Waterloo

Wendy Hague, Office of the Vice-President, Administration and Finance, University of Waterloo

Scott Anderson, Information Systems and Technology, University of Waterloo

Change and its impact on one's teaching practice can be difficult, but change can challenge instructors to adapt and integrate new ways of thinking and support students as learners. Educational technologies (EdTech) play an important role in this work, helping instructors both navigate and embrace change to improve student learning. The goal of the Waterloo EdTech Ecosystem is to ensure instructors can feel confident knowing that they have technologies and institutional supports readily available to benefit their teaching and student learning, but the reality is that there are many tools and supports that remain unknown across our campus.

This poster will provide conference attendees with an opportunity to learn about the EdTech Ecosystem available to them at Waterloo and the ways in which it has been evolving to meet the needs of both instructors and students.

Specifically, the poster will provide an overview of:

- Improvements implemented to LEARN to ensure that it continues to meet the needs of our instructors and students
- Pilots to select EdTech tools to address specific needs such as:
    - Interactive polling (e.g., Vevox/iClicker)
    - Interactive content creation (i.e., Creator+)
    - Understanding learner analytics in LEARN (i.e., Performance+)
- The EdTech Hub – a Waterloo website that consolidates information about the centrally supported educational technologies available at the University
- The EdTech Forum – a virtual space on the EdTech Hub where instructors can connect with colleagues to share information about the use of educational technologies
- The EdTech Sandbox – a virtual/physical space to experiment with new technologies such as virtual reality/extended reality (VR/XR), accessibility software, and new classroom furniture configurations
- Classroom technology that supports active learning and creates more flexible classrooms
- Other EdTech initiatives

A number of these projects contribute to the ongoing evolution of the EdTech Ecosystem. Processes have been developed to ensure greater inclusivity and transparency around decisions and overall sustainability of the educational technologies we centrally support. Evolving the EdTech ecosystem involves both helping the institution navigate necessary change that comes with budgetary considerations for future educational technologies, while also supporting instructors in learning how these new technologies may impact the way they teach. Multiple academic support units reinforce and work toward sustaining this EdTech Ecosystem, including, but not limited to: IST-ITMS, IST, CTE, CEL, TII, and the Project Management Office.

Takeaways:

- UW has an actively managed EdTech Ecosystem to support instructors in using technology to deliver successful learning experiences and outcomes for students.
- UW has developed an EdTech Ecosystem with a goal to achieve greater inclusivity and transparency around decisions and overall sustainability of educational technologies

- There are opportunities for interested instructors to become involved with the newest pilots and innovations exploring educational technologies

References:

- Sources are from staff involved in current projects and initiatives related to educational technology being implemented at the University of Waterloo.

511: Navigating the New Normal: Exploring the Pandemic-Induced Differences in Post-Secondary Transferrable Skills Development and its Applicability in the Workforce

Olivia Gair, University of Guelph

Nida Ansari, University of Guelph

David Walters, University of Guelph

Shoshanah Jacobs, University of Guelph

This poster will review the impact of one's educational background (notably the tertiary education degree obtained and academic field of study) on the use of transferable skills such as problem-solving at work, controlling for work-related and socio-demographic factors. Findings will be compared between the 2011-2012 and 2023-2024 Programme for the International Assessment of Adult Competencies (PIAAC) datasets.

As problems continue to become more complex as a result of global challenges such as the COVID-19 pandemic, it is imperative to understand how the learning context of post-secondary students has changed prior to and since the pandemic, especially in regard to the growing concern about the transferrable skills gap that new graduates experience. This poster hopes to inform future directions for educational research and curriculum reform to better serve student needs in a world where alternative modes of learning are quickly becoming more pervasive and have the potential to create unanticipated impacts on skill development required for the workforce.

At the end of this poster session, attendees can expect to gain a deeper understanding of the changes in transferrable skills use prior to and since the pandemic in relation to individuals' educational background. Attendees will also have the tools to begin to speculate on the changes necessary within the post-secondary learning environment to close the skills gap experienced by new members of the workforce and to limit disruptions in society by improving the applicability of skills learned during post-secondary education.

Takeaways:

At the end of this poster session, attendees can expect to:

- gain a deeper understanding of the changes in transferrable skills use prior to and since the pandemic in relation to individuals' educational background.
- have the tools to begin to speculate on the changes necessary within the post-secondary learning environment to close the skills gap experienced by new members of the workforce and to limit disruptions in society by improving the applicability of skills learned during post-secondary education.

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512: Embracing GenAI: A Strategy for Future-Ready Students

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

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

The increasing integration of Generative Artificial Intelligence (GenAI) tools in the workplace is creating new opportunities and challenges, highlighting the need for employees to expand their skillset (Microsoft & LinkedIn, 2024). However, a gap exists between students' GenAI proficiency and the demands of the evolving labour market (Isik & Agoe, 2024). To thoughtfully integrate Artificial Intelligence (AI) into the curriculum, the University of Waterloo's Centre for Work-Integrated Learning (CfWIL) developed a proactive AI strategy to address these disruptions while innovating teaching and learning practices. This poster will outline the CfWIL's strategy for integrating GenAI into Professional Development (PD) courses. The approach, aligned with best practices (Hanip et al., 2024; Russel Group, 2023; Shailendra et al., 2024), aims to equip students with the skills and knowledge to engage with AI responsibly and effectively in both academic and workplace settings by providing authentic opportunities for students to understand and engage with AI.

We will share the CfWIL's stance on AI and a policy developed and implemented in Winter 2024 to guide students in their use of GenAI in PD courses. We will highlight the development and implementation of the *Responsible Use of AI* educational module, which explores the importance of Responsible AI by examining the ethical, equity, and privacy issues embedded in AI and GenAI applications as well as Responsible AI principles. Finally, we will showcase examples of how we have provided opportunities for students to authentically engage with AI as part of assessments within PD courses. This includes permitting the use of GenAI in assessments and leveraging AI-powered tools, such as InStage, to simulate authentic workplace scenarios.

As part of this poster, we will share how our learnings will shape our AI strategy moving forward, which can be translated to other institutional strategies aimed at preparing students to adapt and excel in the ever-evolving future of work.

Takeaways:

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

- Learn about the Centre for Work-Integrated Learning's AI strategy for PD courses.
- Understand how embracing AI will prepare learners for the future of work.
- Understand the importance of having a GenAI course policy in place.
- Understand the importance of educational modules about GenAI.
- Discuss various considerations if they decide to use GenAI in their assessments.

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Artificial Intelligence Disclosure:

Artificial Intelligence Tool: Microsoft Copilot (University of Waterloo institutional instance); Information Collection: Microsoft Copilot was used to find one source; Writing – Review & Editing: Microsoft Copilot was used for proofreading

513: Online Learning in STEM: A Comparison of Student Approaches to Learning in Anatomy Between Undergraduate Health Science Programs

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Disruptions such as the COVID-19 pandemic, uncertainty of funding, and increases in enrollment have challenged effective content delivery, leading many post-secondary institutions to adopt online content delivery. To describe how students in STEM learn online, we examined the introductory anatomy course at Western University, an asynchronous course offered to the undergraduate programs in the Faculty of Health Science: Kinesiology (KIN), Health Studies (HS), and Nursing (NUR). Each program contains diverse learner populations with different educational needs, desires, and goals. Thus, the aim of this study was to describe how students in each program learn using the student approach to learning (SAL) framework. Additionally, we explored the influence of demographic factors on the learning process using the 3P (presage-process-product) model of student learning. Following the midterm examination, a survey was administered to collect demographic data and quantify SAL on independent surface (SA) and deep (DA) learning scales. Additionally, students' learning motives and strategies were examined to inform the quantitative findings. A one-way ANOVA found a significant effect of program on DA scores ($p < 0.001$), with differences between KIN-NUR ($p < 0.001$) and HS-NUR ($p < 0.001$), but not KIN-HS.

A one-way ANCOVA, controlling for age, sex, and prior knowledge, confirmed this effect ($p < 0.001$) and revealed an interaction with prior anatomy knowledge ($p < 0.05$). Significant differences in prior knowledge were found between KIN-NUR ($p < 0.001$) and KIN-HS ($p < 0.001$), but not HS-NUR. Qualitative data were analyzed via framework analysis with an inductive, triangulation design, which revealed several themes on how students studied. The significant effect of program of study on DA indicates inherent differences in STEM that may impact how students approach learning. Future research on online learning should consider these differences and influence of prior knowledge when developing interventions to ensure equitable content delivery.

Takeaways:

- Program of enrollment has the largest effect on deep approach to learning scores suggesting that there are inherent program-specific differences that may impact how students approach their learning in STEM.
- As program and previous knowledge were both shown to influence approach to learning, STEM courses that adopt an online, asynchronous content delivery style should consider the different populations enrolled in the course when developing course content.
- An area of future research on online learning in STEM should consider the influence of specific programs and prior knowledge on approach to learning when developing interventions to ensure equitable content delivery.

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514: Does Drawing Enhance Learning? Investigating the Effect of Different Anatomical Drawing Exercises on Anatomical Knowledge and Spatial Ability

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Anatomy requires learners to understand functional and spatial relationships between bodily structures, relying on spatial ability (SA)—the capacity to mentally manipulate objects in two- and three-dimensional spaces. While females typically have lower SA than males, it can be improved through activities like drawing, from simple schematics to realistic depictions. Drawing helps learners visualize spatial relationships, enhancing understanding.

To explore this, three interventions of different drawing depths—Control, Schematic, and Spatial—were incorporated into an undergraduate anatomy course. The Control group received slides in a didactic session, while the Schematic and Spatial groups also engaged in guided drawing activities. The Spatial group focused on anatomical relationships, while the Schematic group used standardized symbols to illustrate connections.

Pre- and post-intervention surveys using a Mental Rotations Task (MRT) assessed SA, alongside qualitative data assessing intervention impact on study behaviours and anatomy performance. All groups improved MRT scores, though males showed greater gains. Statistical analysis revealed significant effects of sex ($p < 0.001$) and timepoint ($p < 0.001$), with a significant timepoint-sex interaction ($p < 0.05$), but no overall effect of intervention type. Further analysis unveiled Spatial-Female participants showed significant MRT improvement ($p = 0.0023$), as did Spatial-Male participants ($p = 0.0372$). Gender demographics were considered, however, the data lacked sufficient diversity for reliable comparison. Qualitative analysis revealed the following themes: (1) *crosstalk between groups*, (2) *interest in alternative drawing methods*, (3) *preference for collaboration*, and (4) *personalized drawing strategies*. While SA improvements suggest spatial activities enhance reasoning, findings indicate more detailed, spatially focused drawings may offer greater benefits. Given the deep historical connection between art and anatomy, the role of drawing continues to evolve through technological advancements, incorporating both traditional and digital visualization techniques. Teaching practices must, in turn, align with such evolving demands to address the diverse needs of all students.

Takeaways:

- Embracing diverse teaching methods, such as integrating spatial activities in classrooms, can improve educational outcomes and address students' varied learning needs.
- Observed sex differences in spatial abilities highlight the need for inclusive strategies to ensure equitable learning outcomes for all students, particularly women in STEMM.

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515: Certainty Amidst Uncertainty in Educational Practices

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Amidst a fair amount of disruptions within education, teaching, and learning in the past few years, there still remains some certainty. Core educational and instructional practices such as the fundamental elements of course design including alignment of assessments, inclusive classroom environments, active learning with student engagement, transparency with teaching philosophies, and clear expectations and guidelines have always and will always be important in teaching and learning. This poster presentation will aim to share some practices, strategies, and examples in each of the areas outlined above. These examples will come from responses to pandemic teaching through to generative-AI, as well as through the literature. Through these examples, the goal is to demonstrate how small changes in responses to disruptions can allow for adaptation. In addition, to demonstrate how a small change in response to one disruption is applicable in response to another disruption. The emphasis on a small change(s) is meant to reinforce the importance of a strong foundational course design that can withstand disruptions.

Takeaways:

- Attendees will gain a reinforcement of course design principles as a foundational way to design courses regardless of disruptions.
- Attendees will gain insight on a few small changes in response to various disruptions.
- Attendees will feel empowered to tackle and respond to disruptions.

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516: Bloopers over Exemplars: Case-Based Learning in Early-Year Undergraduate Courses

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Case studies are an effective way to teach students about the application of course content in a memorable and engaging way (Herreid, 2011). This is especially useful in lower-year courses where students have had less exposure to their field of study. The field of structural engineering has, for over three decades, been pushing for the inclusion of failure case studies in undergraduate education to prevent history from repeating itself (Baer, 1996). As instructors, we wanted to bring this practice into our discipline to test if failure case studies could be effective in our classroom.

Over five years, our second-year course has been issuing an assessment based not on exemplary cases, but rather failed work, or "bloopers". Students are asked to investigate the incident and identify the issue that led to the failure, suggest what may have been done differently to prevent the failure, and lastly, to synthesize their research into a one-line takeaway that will help their peers avoid this failure in their future work. The assessment deliverable is a digital poster to be used as a slide during an in-class presentation, where the group must not only present their work, but also lead a discussion on the failure. The posters are made available to the class and serve as a reference library for the remainder of the term.

Our students are very engaged in the blooper stories, which make the one-line takeaways more memorable. Final projects in this course rarely fall victim to the flaws of any of the blooper cases, and during future work students will often quote back blooper presentation takeaways. Unlike exemplars, where the successful aspects may be complex or too nuanced to integrate into a second-year project, failure case studies are proving very successful in our classroom.

Takeaways:

- Have participants who already use case studies as a tool consider using failure case studies, or bloopers as an alternative
- Have participants who don't include case studies in their classroom consider adding failure case studies to boost critical thinking and memorable interactions in their classroom

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517: Assessing the Impact of Flipped Learning on Student Success in Introductory Physics: A Response to Post-Pandemic Disruptions

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The COVID-19 pandemic caused significant disruptions in education, resulting in learning gaps and reduced student engagement, especially in large, diverse classrooms. As higher education adapts to this post-pandemic reality, there is a growing need for evidence-based, student-centered, and active learning approaches.

In response, we implemented a flipped learning model in a large introductory physics course (over 600 students) at the University of Waterloo during 2023–2024 to address these challenges and enhance conceptual understanding. This flipped approach shifts passive content delivery outside the classroom, allowing in-class time to focus on active, collaborative learning. Students completed pre-class video lectures and quizzes to prepare for interactive sessions where the instructor could conduct experiments and facilitate group discussions, making the class more engaging — a contrast to traditional lectures that left no time for such activities. The course, designed for students from diverse academic backgrounds, integrated various active learning strategies to foster deeper understanding, including pre-class assignments, interactive clicker activities, and group work.

To assess the impact of this model on active learning and conceptual understanding, we used the Force Concept Inventory (FCI) as the basis for pre- and post-test assessments (1), following ANCOVA methodology for normalized gain analysis (2). Each test consisted of 47 multiple-choice conceptual questions with distractors and was administered before and after the course to measure learning progression. Unlike traditional lecture models, the flipped format emphasizes active learning as a continuous and integrated element of course design (3).

Preliminary results indicate that students in the flipped format demonstrated significant conceptual gains, with normalized gains exceeding those in previous lecture-based cohorts. In addition to improved conceptual understanding, students exhibited deeper learning outcomes, reflected in their problem-solving abilities and active class participation. We also align with Hake's (1998) argument that stronger conceptual understanding enhances problem-solving performance.

Takeaways:

- Flipped classroom models significantly improve conceptual understanding in large, diverse physics classes
- Flipping the classroom is not simply about changing content delivery—it requires intentional, ongoing integration of active learning strategies and thoughtful assessment design to ensure meaningful learning outcomes.

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518: What I Learned from Designing a New First-Year Course Using GenAI and UDI Framework

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In this poster presentation, I share my experience designing a new first-year course in actuarial science, integrating GenAI in instruction and assessments, and guided by the principles outlined in the Universal Design of Instructions (UDI) framework. Traditionally, a first-year actuarial science course is difficult to design, as students need to have a certain level of math and coding background, and the labor intensiveness for teachers to instruct freshmen may have prevented the program from offering such a course. With the fast-proliferating GenAI, I found an opening to critically leverage the new technology to make this course a reality. Specifically, GenAI allows me to accomplish the following:

- Build course-specific Chatbot as on-demand tutor for students
- Brainstorm applications in emerging fields to make the course content interesting and relevant to first-year students
- Provide fresh ways to interact with students, including AI-generated podcasts with personable characters and jargon-free dialogues

Part of the course is devoted to critical examination of GenAI, both through reviewing the GenAI's outputs in class, and through inviting frontline professionals to speak about their experiences working with AI in the industry.

I will discuss ways to counterbalance the isolated learning experiences as a potential side effect of integrating GenAI. For example, the course heavily relies on a portfolio approach to assessment, to foster multiple means of engagement and expression. Students can build their portfolios through answering real-time polling questions in class, doing assignments with quick turnaround, in-class debates, a team project where students design and propose their own insurance product, a reflection on the use and limit of AI. These strategies both reevaluate core course content in the age of AI and champion a more flexible and customized approach to student assessments. I will briefly describe the student survey to be deployed to assess the new interventions.

Takeaways:

- What GenAI does well and how we can leverage its ability in course design
- Limits of GenAI when we use it in our courses
- Alternative methods for assessing student learning in the age of AI

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