13TH ANNUAL TEACHING AND LEARNING CONFERENCE

Fostering Partnerships in Pedagogy

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Wednesday, April 27, 2022

Keynote: 11:15am – 12:15pm ET

The Transformative Potential of Cross-Constituency, Cross-Disciplinary Pedagogical Partnership

Dr. Alison Cook-Sather, Bryn Mawr College

In this interactive keynote address, Dr. Alison Cook-Sather will offer a definition and outline the underlying principles of pedagogical partnership. Drawing on the work of numerous scholars and several widely cited texts she has co-authored with faculty and students, including Engaging Students as Partners in Learning and Teaching: A Guide for Faculty, Pedagogical Partnerships: A How-to Guide for Faculty, Students, and Academic Developers in Higher Education, and Promoting Equity and Justice through Pedagogical Partnership, she will share a range of examples of pedagogical partnerships between and among faculty and students. These examples focus on curriculum design and redesign (e.g., Goff & Knorr, 2018, and Lubicz-Nawrocka, 2018); equity and inclusion, student engagement, and assessment of learning in classroom practice (e.g., Cook-Sather, 2020 and 2021, Marquis et al., 2021; Weiler & Williamson, 2020); and scholarly research (e.g., Cook-Sather, Abbot, & Felten, 2019, Felten et al., 2013, and Acai et al., 2017). Dr. Cook-Sather will present some of the most common outcomes of such partnership work and invite conference attendees to reflect on where pedagogical partnership is already happening at University of Waterloo and where it might be developed or expanded.

Concurrent Sessions (100): Wednesday, April 27 (12:30pm – 1:30pm ET)

Session 101: Presentations

101a: Using Problem-Based Learning to Practice Transdisciplinary Knowledge Co-Production: The Case for Peer-Led Approaches to Holistic Green Infrastructure Training

Mathieu Feagan, Knowledge Integration, University of Waterloo

Increasingly, sustainability science recognizes the value of transdisciplinary teams, where the challenge is not just about advancing any one person's content-expertise, but rather about the process of putting diverse forms of knowledge into collective action to address real-world problems. Enter knowledge co-production: an iterative and collaborative approach to transdisciplinary teamwork intended to support co-learning and capacity-building as part of a transition toward a more sustainable world. But the challenge remains: how do you do it? While the leaders of professional development and graduate training programs may profess the importance transdisciplinary knowledge co-production as a fundamental component of sustainable and just transitions to resilient futures, they typically do not offer opportunities for early career experts from different programs and institutions to design or practice their own transdisciplinary knowledge co-production activities. In this presentation, I share a case study about how an online symposia series allow an international group of 45 early career green infrastructure experts with different forms of social, ecological, and technological expertise to come together from 35 different institutions and practice transdisciplinary knowledge co-production using peer- and problem-based learning. The objective and key output of this work was to generate a network capable of working collectively on holistic green infrastructure implementation. But perhaps just as important is the emergence of a generalizable principle yet to be well-acknowledged in the sustainability transitions literature, namely, that knowledge co-production requires an explicit pedagogical design that considers power relations. Without this, knowledge co-production may happen accidentally, if you are lucky, but will most likely be stunted or fail to happen at all. In short, sustainability science cannot simply profess the value of knowledge co-production, it must put forward models with generalizable principles for how early career sustainability experts can learn to design and practice transdisciplinary knowledge co-production for themselves. By the end of this presentation participants will have understood: 1) why connecting co-production to pedagogical design matters; 2) how peer- and problem-based learning can help; and 3) what further research is needed into learner-led approaches to institutional change.

Takeaways:

- Efforts at knowledge co-production, transdisciplinary research, and other forms of knowledge integration can benefit from using peer- and problem-based learning.
- Learning rests on and happens through social relations, transformative learning must therefore challenge the reproduction of dominant social relations.
- Online collaboration technologies offer critical tools to groups interested in building capacity for inter-sectoral, inter-institutional transformation.

References:

- Adriana A. Zuniga-Teran, Chad Staddon, Laura de Vito, Andrea K. Gerlak, Sarah Ward, Yolandi Schoeman, Aimee Hart & Giles Booth. (2020). Challenges of mainstreaming green infrastructure in built environment professions. Journal of Environmental Planning and Management, 63:4, 710-732, DOI: 10.1080/09640568.2019.1605890
- Armitage, D., J. Arends, N. L. Barlow, A. Closs, G. A. Cloutis, M. Cowley, C. Davis, S. D. Dunlop, S. Ganowski, C. Hings, L. Chepkemoi Rotich, K. Schang, S. Tsuji, and C. Weins. (2019). Applying a "theory of change" process to facilitate transdisciplinary sustainability education. Ecology and Society 24(3):20. https://doi.org/10.5751/ES-11121-240320

- Avelino, F. (2017). Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability. Environmental Policy and Governance, 27(6), 505–520. https://doi.org/10.1002/eet.1777
- Barrows, Howard S. (1996). "Problem-based learning in medicine and beyond: A brief overview". New Directions for Teaching and Learning. 1996 (68): 3–12. doi:10.1002/tl.37219966804
- Buyana, K., Walubwa, J., Mukwaya, P. et al. (2021). City residents, scientists and policy-makers: power in co-producing knowledge. Urban Transform 3, 1. https://doi.org/10.1186/s42854-021-00020-6
- Frantzeskaki N, Bach M, Hölscher K, Avelino F. (2018). Introducing sustainability transitions' thinking in urban contexts. In: Frantzeskaki N, Hölscher K, Bach M, Avelino F, editors. Co-creating sustainable urban futures, vol. 11. Future City: Springer.
- Fróes, I., Lasthein, M.K. (2020). Co-creating sustainable urban metabolism towards healthier cities. Urban Transform 2, 5. https://doi.org/10.1186/s42854-020-00009-7
- Fushcia-Ann Hoover, Sara Meerow, Zbigniew J. Grabowski & Timon McPhearson. (2021). Environmental justice implications of siting criteria in urban green infrastructure planning, Journal of Environmental Policy & Planning, DOI: 10.1080/1523908X.2021.1945916
- Haider, L.J., Hentati-Sundberg, J., Giusti, M. et al. The undisciplinary journey: early-career perspectives in sustainability science. Sustain Sci 13, 191–204 (2018).
- Manuel-Navarrete, D., C. Buzinde, and T. Swanson. (2021). Fostering horizontal knowledge co-production with Indigenous people by leveraging researchers' transdisciplinary intentions. Ecology and Society 26(2):22. https://doi.org/10.5751/ES-12265-260222
- Matsler M, Thaddeus R. Miller and Peter M. Groffman. (2020). The Eco-Techno Spectrum: Exploring Knowledge Systems' Challenges in Green Infrastructure Management. Urban Planning (ISSN: 2183–7635) Volume 6, Issue 1, Pages 49–62 DOI: 10.17645/up.v6i1.3491.
- Meerow S. (2020). The politics of multifunctional green infrastructure planning in New York City. Cities, Volume 100, 2020, 102621, ISSN 0264-2751, https://doi.org/10.1016/j.cities.2020.102621.
- Metelerkamp, L., R. Biggs, and S. Drimie. (2020). Learning for transitions: a niche perspective. Ecology and Society 25(1):14. https://doi.org/10.5751/ES-11326-250114
- Miller, T. R., T. D. Baird, C. M. Littlefield, G. Kofinas, F. Chapin, III, and C. L. Redman. (2008). Epistemological pluralism: reorganizing interdisciplinary research. Ecology and Society 13(2): 46. [online] URL: http://www.ecologyandsociety.org/vol13/iss2/art46/
- Palmer, H., Polk, M., Simon, D. et al. (2020). Evaluative and enabling infrastructures: supporting the ability of urban co-production processes to contribute to societal change. Urban Transform 2, 6. https://doi.org/10.1186/s42854-020-00010-0
- Patterson, J.J.; Lukasiewicz, A.; Wallis, P.J.; Rubenstein, N.; Coffey, B.; Gachenga, E. and Lynch, A.J.J. (2013). Tapping fresh currents: Fostering early-career researchers in transdisciplinary water governance research. Water Alternatives 6(2): 293-312 https://www.water-alternatives.org/index.php/all-abs/217-a6-2-14/file
- Pereira, L., Drimie, S., Zgambo, O. et al. (2020). Planning for change: Transformation labs for an alternative food system in Cape Town, South Africa. Urban Transform 2, 13. https://doi.org/10.1186/s42854-020-00016-8
- Peris, J., Bosch, M. (2020). The paradox of planning for transformation: the case of the integrated sustainable urban development strategy in València (Spain). Urban Transform 2, 7. https://doi.org/10.1186/s42854-020-00011-z
- Sarabipour, S., Khan, A., Seah, Y.F.S. et al. (2021). Changing scientific meetings for the better. Nat Hum Behav 5, 296–300. https://doi.org/10.1038/s41562-021-01067-y
- Schipper, K., Silvestri, G., Wittmayer, J.M. et al. (2019). Handle with care: navigating the pluriformity of power to enable actionable knowledge for transitions in informal settlements in the global south. Urban Transform 1, 4. https://doi.org/10.1186/s42854-019-0004-4

- Welch-Devine, M., D. Hardy, J. P. Brosius, and N. Heynen. (2014). A pedagogical model for integrative training in conservation and sustainability. Ecology and Society 19(2): 10. http://dx.doi.org/10.5751/ES-06197-190210
- Wolfram M. (2018). Urban planning and transition management: Rationalities, instruments and dialectics. Co-creating sustainable urban futures, Future City: Springer.

101b: Empowering Co-Curricular Learning Partnerships to Address Sustainable Energy Challenges in a Volatile, Uncertain, Complex and Ambiguous (VUCA) World

Christine Moresoli, Chemical Engineering, University of Waterloo

Monika Mikhail, School of Environment, Enterprise and Development, University of Waterloo

Pedagogical partnerships (PP) are collaborative and reciprocal relationships where participants (faculty and students) contribute to an investigation focusing on the process rather than the outcome and benefit from mutual learning (Cook-Sather et al., 2019). Current global complexities produce what is referred to as a volatile, uncertain, complex, and ambiguous (VUCA) work environment which presents a call for higher education institutions (HEIs) to prepare students to face this new reality (Seow et al., 2019). Through PPs, students can be empowered to develop creative and innovative ways to navigate ambiguous situations (Cook-Sather et al., 2019). HEIs can encourage students to create co-curricular activities around VUCA societal problems and develop multiple partnerships. One example is the interdisciplinary cocurricular student-led competition known as EnerChallenge recently established by the Student Energy chapter at the University of Waterloo.

The EnerChallenge is structured around PPs with faculty members from different departments as subject matter experts. Student participants focus on the VUCA problem of access to affordable and sustainable energy for Canadians. This focus is in line with the need for students to be critical thinkers, problem solvers, decisions makers and engage with the community to solve real problems (Seow et al., 2019). The benefits of co-curricular activities are reported by Wilson et al., (2014) in the context of potential relationships between co-curricular activities, such as design competitions, student engagement, and positive learning outcomes including student motivation and critical thinking. The EnerChallenge presents a unique opportunity for educators to reflect on ways to incorporate similar activities in their mainstream curricular activities and increase student engagement.

In this presentation, we will elaborate on the motivation and benefits of faculty and students PPs to engage in co-curricular experiential learning opportunities such as the EnerChallenge. The lessons learned with the EnerChallenge and their integration into curricular activities will also be discussed.

Takeaways:

- Pedagogical partnerships between faculty and students encouraged the creation of a co-curricular activity focused on societal challenges.
- This co-curricular activity can provide an opportunity for educators to reflect on ways to increase student engagement in curricular activities.

References:

- Cook-Sather, A., Bahti, M., & Ntem, A. (2019). Pedagogical Partnerships. Elon University Center for Engaged Learning. https://doi.org/10.36284/celelon.oa1
- Seow, P.-S., Pan, G., & Koh, G. (2019). Examining an experiential learning approach to prepare students for the volatile, uncertain, complex and ambiguous (VUCA) work environment. The International Journal of Management Education, 17(1), 62–76. https://doi.org/10.1016/j.ijme.2018.12.001
- Wilson, D., Jones, D., Kim, M. J., Allendoerfer, C., Bates, R., Crawford, J., … Veilleux, N. (2014). The Link between Cocurricular Activities and Academic Engagement in Engineering Education. Journal of Engineering Education, 103(4), 625–651. https://doi.org/10.1002/jee.20057

101c: Fostering a Creative Campus

Amala Poli, Western University

Kristina Axenova, Western University

Masha Kouznetsova, Western University

Kim Solga, Western University

Sandra Smeltzer, Western University

This presentation will share empirical findings of a large-scale needs-assessment survey and focus group discussions conducted in 2021-22 at a research-intensive Canadian University and its affiliated colleges. The Qualtrics-based survey received approximately 3,000 responses from students, faculty, and staff who were asked to reflect on the relationship between creativity and the arts, overarching attitudes toward creativity, and whether and how creativity benefits their daily life both on and off campus. Drawing on information gleaned from survey and focus group data, the presentation will address the following questions: What can universities do to nurture greater creativity and to what ends? What kinds of partnerships do universities need to foster between academic units to overcome deterrents to developing creative capacities? How do students view/describe their creative needs and approaches to learning?

Our interdisciplinary research team is composed of a partnership between faculty members, graduate students, and undergraduate students from four different faculties. Our key findings include: an overwhelming number of respondents expressed that creativity is essential to their well-being; most did not believe that their academic institution supported or valued creativity sufficiently; students considered their off campus lives to be more creative and desired opportunities to engage in arts and other creative activities on campus; respondents viewed the term 'creativity' in remarkably diverse ways. Results of this survey will inform the final part of this tripartite pedagogy and research project: the development of an upper-year, interdisciplinary course that combines creativity and the arts in partnership with four faculties and two staff offices on our campus. These findings are relevant to a wide range of disciplines (our survey yielded responses from every faculty in our university and affiliated colleges), as creativity is critical to our lives as academics and to our well-being as individuals.

Takeaways:

- Creativity needs to be nurtured on our campuses and in all disciplines. Our data indicate that participants frequently associate creativity with positive benefits, and desire increased opportunities to engage in creative pursuits.
- Undergraduate and graduate students crave additional avenues to be creative on their campuses; they want their institutions to foster an educational environment that develops the 'whole' person.
- STEM-oriented faculty members want to partner with non-STEM faculty and staff to encourage additional opportunities for their units (faculty, staff, and students in their departments) to embrace creativity.

References:

- Alvarez, Natalie, with Kim Solga. 2019. "Living the interdiscipline: Natalie Alvarez speaks with Kim Solga about conceiving, developing, managing, and learning from a large-scale, multidisciplinary, scenario-based project supporting police de-escalation training in Ontario." Research in Drama Education 24.3 (August).
- Carolan, Claire. 2018. "An Informal Assessment of Twenty-First Century Skills Developed Through Hidden Curriculum in Theatre Studies." Theatre Research in Canada 39.1: 81-3.
- Ehtiyar, R., & Baser, G. (2019). University education and creativity: An assessment from students' perspective. Eurasian Journal of Educational Research, 19(80), 113-132.

- Fields, Z., & Bisschoff, C. (2014). Comparative analysis of two conceptual frameworks to measure creativity at a university.
- Gallagher, Kathleen, and Barry Freeman, eds. 2016. In Defense of Theatre: Aesthetic Practices and Social Interventions. Toronto: University of Toronto Press.
- McKinnon, James. 2018. "Master of All Domains? Constructively Aligning Theatre and Learning." Theatre Research in Canada 39.1: 93-5.
- Mighton, John. 2016. "Thinking Beyond the Boundaries of Theatre, Math, and Reality." In Defence of Theatre Gallagher and Freeman: 230-40.
- Perignat, E., & Katz-Buonincontro, J. (2019). STEAM in practice and research: An integrative literature review. Thinking skills and creativity, 31, 31-43.
- Rossiter, K., J. Gray, P. Kontos, M. Keightley, A. Colantonio, and J. Gilbert. 2008. "From Page to Stage: Dramaturgy and the Art of Interdisciplinary Translation." Journal of Health Psychology 13.2: 277-86.
- Said-Metwaly, S., Van den Noortgate, W., & Kyndt, E. (2017). Approaches to measuring creativity: A systematic literature review. Creativity. Theories–Research-Applications, 4(2), 238-275.

Session 102: Presentations

102a: Instructors and Technologies as Partners in Blended Courses

Taru Malhotra, Conrad School of Entrepreneurship and Business, University of Waterloo

Ron Owston, York University

Mary Power, Centre for Teaching Excellence, University of Waterloo

Blended Learning is a pedagogy that offers a purposeful combination or in-person and online components in their design, delivery and assessment pieces (Bonk and Graham, 2006; Vaughan, 2014). As technologies have become inevitable in higher education, there is an emphasis that instructors must use varied technologies to better teaching and learning (Martin et al., 2020). Many studies have focused on the varied use of technologies to measure student perceptions, engagement, satisfaction, and learning in blended courses (Owston, 2018; Owston, York, & Malhotra, 2019; Vaughan, 2020). Although several studies have suggested that teachers' knowledge of technologies and attitudes around technology influence their use within K-12 classrooms (Admiraal et al., 2017; Borokhovski et al., 2015; Mishra & Koehler, 2006); interestingly, instructors' attitudes and their use of technology have not been studied much in post-secondary classrooms.

In this study, we explore instructors' knowledge and attitudes towards technologies and their practices to examine ways they use technologies in blended courses. We used a mixed-method approach to collect 71 online instructor surveys, 24 individual instructor interviews, and classroom observations of 15 instructors. We analyzed our quantitative data using SPSS and our qualitative data using NVIVO.

Findings suggest that, although most instructors had a positive attitude towards using technologies in their blended courses, some worried about the time requirements, positions, student evaluations and expectations. This study also highlights how these instructor-technology practices shifted across disciplines through their blended courses' design, delivery, and assessment pieces. This study also offers recommendations to theory and practice and suggestions for instructors, instructional designers, and policyholders. The presentation will discuss the findings of this study and highlight how these instructor-technology relationships change with changing instructor beliefs.

Takeaways:

- It is necessary for instructors to explore their attitudes towards technologies before they blend their courses. This will offer them an opportunity to work towards the skills they need to develop.
- It is important for designers to gauge individual instructors' attitudes towards technology including their existing knowledge and skills, and the course needs while designing custom professional development workshops.
- Instructors and instructional designers need to be mindful of the overall purpose of using technologies in their blended courses within their particular discipline.

References:

- Borokhovski, E., Bernard, R. M., Tamim, R. M., Schmid, R. F., & Sokolovskaya, A. (2016). Technology-supported student interaction in post-secondary education: A meta-analysis of designed versus contextual treatments. Computers & Education, 96, 15-28. https://doi.org/10.1016/j.compedu.2015.11.004
- Martin, F., Polly, D., Shanna, C., & Wand, C. (2020). Examining higher education faculty current use of digital technologies: Importance, competence, and motivation. International Journal of Teaching and Learning in Higher Education, 32(1), 73-86. Retrieved from https://files.eric.ed.gov/fulltext/EJ1259547.pdf

- Owston, R., York, D., Malhotra, T., & Sitthiworachart, J. (2020). Blended learning in STEM and non-STEM courses: How do student performance and perceptions compare? Online Learning Journal, 24(3), 203-221. https://doi.org/10.24059/olj.v24i3.2151
- Owston, R., York, D., & Malhotra, T. (2019). Blended learning in large enrolment courses: Student perceptions across four different instructional models. Australasian Journal of Educational Technology, 35(5), 29-45. Retrieved from https://eric.ed.gov/?id=EJ1235360
- Vaughan, N. (2007). Perspectives on blended learning in higher education. International Journal on ELearning, 6(1), 81. https://www.learntechlib.org/primary/p/6310/.
- Vaughan, N.D. (2020). Student engagement and blended learning: What's the connection? Educacion Superior. 30(2). Available online at: http://revistavipi.uapa.edu.do/index.php/edusup/article/view/204

102b: The Best Flip: Student-Focused Designs for Online Flipped Classrooms

Miti Mazmudar, Computer Science, University of Waterloo

Flipped classroom (FC) designs commonly include the following three elements: pre-class preparation, pre-class or in-class assessment of the learned content, and in-class activities, which may be interleaved with short in-class lectures (van Alten, 2019). We find evidence that each of these three elements contributes to improving students' performance in and satisfaction with FCs, in comparison with traditional classrooms (van Alten, 2019; Strelan 2020). Thus, successful flipped classrooms require *implicit student buy-in*: students need to re-orient their learning approaches, by dedicating time ahead of class for pre-class learning and assessments, as well as by participating during class (Lundin, 2018). Importantly, students need to partner with their instructor to repeatedly follow these learning approaches throughout the term, as flipping the entire course instead of just certain classes, causes a significant improvement in students' satisfaction with the course (Strelan, 2020).

For an *explicit student partnership*, FC instructors can use pre-class preparation to develop student-driven in-class activities in an FC design. Instructors may wish to gradually hand over more class time to student-driven activities in their FC as the course progresses. We present two example FC designs spanning a range of student involvement, from students choosing in-class question topics, to largely informing the in-class activities and their content.

Platforms such as Perusall ("Perusall", 2021) facilitate social annotation of text and can be used to seek students' questions or opinions before class (Miller, 2018).

An FC instructor can use most upvoted questions on such platforms to guide the content of in-class microlectures. Upvoted comments can be used to initiate in-class activities such as debates.
Second, we discuss an example of transforming a low-stakes out-of-class individual student assessment, namely an online blog task forum, into a student-driven in-class jigsaw/case study activity.
We conclude with pointers for instructors to focus their time and effort in designing student-driven FCs.

Takeaways:

- Successful flipped classrooms require implicit student buy-in: students need to re-orient their learning approaches, by dedicating time ahead of class for pre-class learning and assessments, as well as by participating during class. Students should partner with the instructor to continue these learning approaches throughout the course, to experience increased satisfaction and performance in the course.
- In an explicit student partnership, FC designs can use pre-class preparation and assessment to develop student-driven in-class activities. Student-driven in-class activities may involve varying degrees of involvement from choosing a portion of in-class microlecture content, to informing the in-class activities and their content.

References:

- Lundin, M., Bergviken Rensfeldt, A., Hillman, T., Lantz-Andersson, A., & Peterson, L. (2018). Higher education dominance and siloed knowledge: A systematic review of flipped classroom research. International Journal of Educational Technology in Higher Education, 15(1), 20. https://doi.org/10.1186/s41239-018-0101-6
- Miller, K., Lukoff, B., King, G., & Mazur, E. (2018). Use of a social annotation platform for pre-class reading assignments in a flipped introductory physics class. Frontiers in Education, 3, 8. https://doi.org/10.3389/feduc.2018.00008
- Perusall. (2021). Perusall. Retrieved March 10, 2021, from https://perusall.com
- Strelan, P., Osborn, A., & Palmer, E. (2020). Student satisfaction with courses and instructors in a flipped classroom: A meta-analysis. Journal of Computer Assisted Learning, 36(3), 295–314. https://doi.org/10.1111/jcal.12421

- van Alten, D., Phielix, C., Janssen, J., & Kester, L. (2019). Effects of flipping the classroom on learning outcomes and satisfaction - a meta-analysis. Educational Research Review, 28(100281). https://doi.org/10.1016/j.edurev.2019.05.003

102c: Faculty-Student Partnerships in Higher Education through Instructional Design and Technology

Jaclyn Queen, Georgia College & State University

Partnerships among faculty and students are emerging as a distinguished practice to enhance student engagement and create authentic learning experiences. Student-faculty partnerships are defined as a collaborative, reciprocal process through which all participants have an equal opportunity to make contributions and discoveries. In this type of partnership, students become active partners in the pedagogical planning process. The partnership among faculty and students empowers the role of learners and provides students with opportunities to gain authentic experiences. Interdisciplinary course design and collaboration among faculty create learning environments that foster learning for all learners. This session will focus on designing lessons to develop a faculty-student partnership to enhance student experiences and promote student ownership of their learning. The information shared in this session will help participants understand the value of the faculty-student partnership and the many ways that this can be done by giving students the opportunity to select and design teaching practices, assignments, rubrics, and assessments. Participants will receive resources, and information about tech software that can be used to enhance learning. They will be able to identify connections to literature, theory, research, and practice through the research data presented. The purpose of this session is to ensure that participants leave this session with the knowledge, ideas, and resources needed to implement this practice into their course design. The presenter will share research articles and tech software that focuses on suggestions, ideas, and benefits of collaborating with students to develop an environment that empowers learning.

By the end of this session, learners will be able to: (1) define and describe student/faculty partnerships, (2) identify strategies for developing a faculty-student partnership through course design and technology, (3) describe the benefits of partnering with students to design course activities and assessments, and (4) identify teaching and learning methods to foster partnerships with students.

Takeaways:

- This session focuses the authentic learning experiences and the significance of faculty-student partnerships through course design and the use of technology.
- Research findings show that there are long-term benefits from faculty embracing the strategy to work with students to develop classroom instruction, activities, and assessments.
- Students who are involved in the design and development of teaching and learning strategies are very likely to take control of their learning.

References:

- Clancy T, Ferreura, C, Thompson P. Student-Faculty Partnerships as a foundation for authentic learning. (2019).
- DeBartolo, E., Hoffman, C., & Zaczek, M. (n.d.). Student-Faculty Partnerships. 2006 Annual Conference & Exposition Proceedings. https://doi.org/10.18260/1-2--1376
- Merriam, S. B., & Baumgartner, L. (2020). Learning in adulthood: A comprehensive guide. Jossey-Bass.
- Kaur, A., Awang-Hashim, R., & Kaur, M. (2018). Students' experiences of co-creating classroom instruction with faculty- A case study in eastern context. Teaching in Higher Education, 24(4), 461–477. https://doi.org/10.1080/13562517.2018.1487930

Session 103: Presentations

103a: SLICCs and the Importance of Reflecting in Community

Mary Robinson, Engineering Undergrad Office, University of Waterloo

Carolyn MacGregor, Systems Design Engineering, University of Waterloo

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

In the spirit of fostering partnership through pedagogy, we share our experiences as a co-created learning community of instructors, mentors, and leaders applying Student-Led, Individually-Created Courses (SLICCs) to GenE 415 in Winter 2022. The underlying motivation for GenE 415 is to allow student leaders within the Faculty of Engineering to earn course credit through leveraging their lived experiences serving their communities. For this first iteration, all students enrolled are senior undergraduates in their final academic term with hundreds of hours of leadership experience prior to the course.

Developed at the University of Edinburgh, SLICCs integrate reflective practice and self-assessment activities allowing students to gain credit for the co-created, student-selected experiential learning project (Speirs et al., 2017). The intent of the SLICC framework is to support the learner's self-identified goals through evidence-based reflective analysis of skills gained through experience.

While the deliverable of a meaningful personal project fits with the course intent to allow student leaders to find value in their own experiences, the real value lies in the weekly discussions when instructors and students to come together to create a supportive learning community. Rather than instructors serving only as leads, facilitators and assessors, we modified the course delivery so that the instructors are also "students" experiencing the same pedagogical demands associated with writing reflections and working on a project related to their leadership experiences in the same time frame as the students. Using a layered mentoring approach, when the instructors are providing feedback to the students on their individual projects, our SLICCs pedagogy mentor provides feedback on the instructors' own projects. We share lessons learned from implementing SLICCs into a new course, adaptations for future iterations, and discuss how reflecting in a sharing community contributes to self-awareness and leadership identity development.

Takeaways:

- The SLICC model allows student leaders to define leadership in a way that is personally meaningful to them.
- Reflection happens best in an engaged community VS in isolation.
- Building and maintaining an environment of trust must be purposeful and is critical for this community to be successful.

References:

- NM Speirs, SC Riley, G McCabe. "Student-Led, Individually-Created Courses: Using Structured Reflection within Experiential Learning to Enable Widening Participation Students' Transitions Through and Beyond Higher Education." 2017. Journal of Perspectives in Applied Academic Practice, 5(2) pp. 51-57.

103b: Understanding and Mitigating Student Resistance to Active Learning

Christopher Lang, Pure Mathematics, University of Waterloo

Active learning is a teaching approach that puts students at the centre of their learning. Such an approach necessitates a partnership between student and instructor. Despite the great deal of evidence demonstrating the effectiveness of active learning, adoption of the method has been quite slow — especially in STEM classrooms (Freeman et al., 2014; Prince, 2004; Jamieson & Lohmann, 2012). One of the main reasons why instructors are hesitant to adopt active learning is the belief that there exists rampant student resistance to active learning: negative reactions towards participation in active learning exercises. Thankfully, this resistance is not as common as many instructors fear and there are many strategies in the literature to mitigate it (Brent & Felder, 2009; Carlson & Winquist, 2011).

In this talk, we review the literature on student resistance to active learning. In particular, we focus on three main areas: understanding the causes of student resistance, finding strategies to reduce this resistance, and explaining the success of these strategies. To this end, we primarily follow Shekhar et al. (2020) and Nguyen et al. (2021). While these papers deal with STEM instruction, the strategies identified are not specific to these fields and can be easily applied broadly.

Takeaways:

- Student resistance to active learning is not as prevalent as instructors fear.
- Strategies to mitigate student resistance fall under three categories: those that explain why active learning is used and how to complete the activities, those that facilitate the completion of activities, and those that take place outside of the classroom.
- Strategies work because they set expectations for active learning, explain the value of active learning, guide students as they learn in this new paradigm, and/or because they help students view failure as a learning opportunity.

References:

- Brent, R., & Felder, R. M. (2009). Analysis of fifteen years of the National Effective Teaching Institute. Paper presented at the 2009 ASEE Annual Conference, Austin, TX.
- Carlson, K. A., & Winquist, J. R. (2011). Evaluating an active learning approach to teaching introductory statistics: A classroom workbook approach. Journal of Statistics Education, 19(1).
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. Proceedings of the national academy of sciences, 111(23), 8410-8415.
- Jamieson, L. H., & Lohmann, J. R. (2012). Innovation with impact: Creating a culture for scholarly and systematic innovation in engineering education. American Society for Engineering Education, Washington, 77.
- Nguyen, K. A., Borrego, M., Finelli, C. J., DeMonbrun, M., Crockett, C., Tharayil, S., Shekhar, P., Waters, C., & Rosenberg, R. (2021). Instructor strategies to aid implementation of active learning: a systematic literature review. International Journal of STEM Education, 8(1), 1-18.
- Prince, M. (2004). Does active learning work? A review of the research. Journal of engineering education, 93(3), 223-231.
- Shekhar, P., Borrego, M., DeMonbrun, M., Finelli, C., Crockett, C., & Nguyen, K. (2020). Negative student response to active learning in STEM classrooms: A systematic review of underlying reasons. Journal of College Science Teaching, 49(6), 45-54.

103c: Fostering Experiential Partnerships with Theatre and Mental Health: Realistic Family Therapy Training (RFTT) for Psychology and Acting Students *

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

Dillon Browne, Psychology, University of Waterloo

Rebecca Zehr, Political Science, University of Waterloo

Amine Mhedhbi, Computer Science, University of Waterloo

Andy Houston, Communication Arts, University of Waterloo

Experiential learning occurs when "a personally responsible participant cognitively, affectively, and behaviorally processes knowledge, skills, and/or attitudes in a learning situation by a high level of active involvement" (Hoover & Whitehead, 1975). A meta-analysis spanning 40-years demonstrated that student learning is nearly a half standard deviation higher when instructors employed experiential methodology (Burch et al., 2016). Yet, there is no standard experiential learning opportunity for undergraduate psychology students in the areas of mental health and clinical intervention (i.e., psychotherapy or family therapy). This is a natural yet unfortunate phenomenon, as it is not safe, realistic, or responsible to have undergraduates interacting with persons who suffer from mental illness and/or family dysfunction. Thus, many seek volunteer positions off campus with organizations to support their applications to "clinical" psychology or related professional programs. These volunteer experiences are not incorporated into core training, and students are left to decide whether to pursue professional work in mental health, having virtually no exposure to mental health services.

Realistic Family Therapy Training (RFTT), which is an interdisciplinary pedagogical partnership between psychology and theatre, was developed to address these limitations in undergraduate psychology. The approach involves training student actors who theatrically form into a family and engage in therapy with a licensed therapist, who is also the course instructor, in front of the class. This provides experiential learning that circumvents risk of exposing junior trainees to high-stakes healthcare contexts. Moreover, student actors gain an unprecedented opportunity to engage with a mental health professional while honing character development and improvisation skills. The purpose of this presentation is to illustrate the collaborative process underlying RFTT, including lessons learned through implementation of this model, and tips for developing partnerships between theatre and health sciences (and other applied fields). Enhancements to student learning and improvements in experiential teaching methodology are discussed.

Takeaways:

- Partnerships with theatre can be used to enhance undergraduate student learning in applied health sciences and related disciplines.
- Student actors can successfully engage with licensed mental health professionals to showcase therapy to undergraduates.

References:

- Burch, G., Giambatista, R. C., Batchelor, J., Hoover, J. D., Burch, J., Heller, N., & Shaw, J. (2016). Do experiential learning pedagogies effect student learning? A meta-analysis of 40 years of research. In Academy of Management Proceedings (Vol. 2016, No. 1, p. 16838). Briarcliff Manor, NY 10510: Academy of Management.
- Hoover, J. D., & Whitehead, C. J. (1975, March). An experiential-cognitive methodology in the first course in management: Some preliminary results. In Developments in Business Simulation and Experiential Learning: Proceedings of the Annual ABSEL Conference (Vol. 2).

Session 104: Presentations

104a: Peer to Peer: Implementing a Holistic, Cross-Unit Model of Student Success Mentoring

Brendaly Drayton, The Pennsylvania State University

Shana Clarke, The Pennsylvania State University

Joan Miller, The Pennsylvania State University

The Academic Peer Mentoring Program (APMP) is a mentoring program designed to help students move out of academic warning into good academic standing. The program is a collaboration between two departments of The Pennsylvania State University: two advisors from the Department of Undergraduate Studies and the program manager for Penn State Learning's Guided Study Groups program. We were brought together by our passion for student success, an awareness that they are various socio-economic factors that promote or hinder student success, and a desire to provide a life raft, if you will, for students who were in danger of being dismissed from school.

Anchored in research demonstrating the positive outcomes of peer mentorship (Shook & Keup, 2012; Asgari & Carter, J. 2016; McBride, Campbell, Woods, & Manson, 2016), we created an academic peer mentoring program that consists of a preparatory course for potential mentors and an internship where mentors are paired with one or two students each semester. The curriculum is based on an integrated model of academics and social support; in which peer mentors are trained to facilitate cognitive (e.g., tutoring), metacognitive (e.g., study skills), and affective (e.g., wellness) development. Weekly meetings between mentees and their mentors provide accountability, exploration of current concerns, and strategies and resources to meet current needs. We have found that the program provides a range of substantive learning outcomes for mentees, mentors, and coordinators. The program is an example of how support units can work together combining knowledge and resources to address a particular area of need. This presentation will provide an overview of the program, discuss the challenges and successes, and the learning outcomes for mentors, mentees, and coordinators. It provides an opportunity for participants to think about and envision partnerships to address areas of need on their campuses.

Takeaways:

- Cross-unit collaboration leverage knowledge and resources for academic success.
- Peer mentoring provides intermediary student support faculty and advisors would like to provide but have limited capacity to offer.
- A cross-unit peer mentoring program fosters learning and development for mentees, mentors and program coordinators.

References:

- Shook, J. and Keup. The Benefits of Peer Leader Programs: An Overview from the Literature. NEW DIRECTIONS FOR HIGHER EDUCATION, no. 157, Spring 2012. DOI:10.1002.20002
- Asgari, S. and Carter Jr., F. Peer Mentors Can Improve Academic Performance: A Quasi-Experimental Study of Peer Mentorship in Introductory Courses. DOI:10.1177/0098628316636288. Teaching of Psychology, 2016, Vol. 43(2) 131-135
- McBride, A. B., Campbell, J., Woods, N. F., & Manson, S. M. (2017, JUNE). Building a mentoring network. Nursing Outlook, 65(3), 305-314. doi.org/10.1016/j.outlook.2016.12.001.

104b: Embedding Wellness Content into First Year Engineering Curriculum

Renate Donnovan, Engineering, University of Waterloo

Amanda Cook, Human Rights, Equity and Inclusion, University of Waterloo

David Wang, Electrical and Computer Engineering, University of Waterloo

Leah Foster, Engineering Wellness Program, University of Waterloo

The wellbeing of students in the Faculty of Engineering at the University of Waterloo has been a growing concern over the past decade. A complex interplay between workload, competitive culture, incoming student preparedness and health determinants have created a growing risk to the safety of students. Student feedback emphasizes the need for wellness supports to be embedded into the curriculum, rather than added-on as extracurricular content.

In response, wellness content was embedded into a first year, Electrical and Computer Engineering professional practice and ethics course. The switch to remote learning caused by the pandemic brought forward questions about how to creatively integrate wellness content into online learning. Three Learn-based wellness modules: Time Management, Understanding Mental Health, and Surviving to Thriving were created and added to the course in Fall 2020.

There is long-standing recognition that female identifying engineering students continue to experience sexual discrimination, harassment and violence throughout their programs. The Learn-based modules provided an opportunity for Engineering Wellness, the Sexual Violence Prevention and Response Office and the course instructors to collaborate on developing the Relationships, Consent & Sexual Violence module which was piloted in Fall 2021.

In this presentation we will share pieces of the Relationships, Consent and Sexual Violence module and briefly describe how this module is one creative solution to the variety of challenges we've experienced seeking to embed wellness content into curriculum. Insights on lessons learned, and lessons to consider should others be inspired to embed similar content into their Faculties will also be shared.

Takeaways:

- Explore one innovative way to embed wellness content into program curriculum.
- Highlight pedagogical partnerships and student collaborations in instructional design.
- Feature interactive functions in Learn that can enhance student experience.

References:

- Conley, C. S., Durlak, J. A., & Dickson, D. A. (2013). An evaluative review of outcome research on universal mental health promotion and prevention programs for higher education students. *Journal of American College Health, 61(5)*, 286–301. https://doi.org/10.1080/07448481.2013.802237
- Kessler, R.C., Demler, O., Frank, R.G., Olfson, M., Pincus, H.A., Walters, E.E..... Zaslavsky, A.M. (2005). Prevalence and treatment of mental disorders, 1990 to 2003. *New England Journal of Medicine, 352*, 2515-2523.
- Michael T. Kalkbrenner, Cheyenne James & Andrés E. Pérez-Rojas (2020) College Students' Awareness of Mental Disorders and Resources: Comparison across Academic Disciplines, *Journal of College Student Psychotherapy*, DOI: 10.1080/87568225.2020.1791774
- Ontario's Universities. 2022. *Mental Health - Ontario's Universities*. [online] Available at: <https://ontariouniversities.ca/issues-priorities/student-supports> [Accessed 7 March 2022].
- Sarah Ketchen Lipson, Sasha Zhou, Blake Wagner III, Katie Beck & Daniel Eisenberg (2016) Major Differences: Variations in Undergraduate and Graduate Student Mental Health and Treatment

104c: Assessing the Effectiveness of a Novel Wellness Check-In Activity Among Third-Year Pharmacy Students *

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

Heidi Fernandes, University of Alberta

Cynthia Richard, School of Pharmacy, University of Waterloo

Kaitlin Bynkoski, School of Pharmacy, University of Waterloo

Becky Ewan, School of Pharmacy, University of Waterloo

Sherilyn Houle, School of Pharmacy, University of Waterloo

Burnout is a form of extreme professional exhaustion prevalent in many caring professions. Pharmacy learners may be at a higher risk for burnout due to personality factors such as high self-expectations and "Type A" personalities. The condition also has practice implications, such as higher medical error rates and malpractice risk. Addressing student wellness and burnout aligns with both the current context of pharmacy practice as well as recommendations from a University of Waterloo Advisory Committee on Student Mental Health to incorporate concepts of wellness into course materials.

To equip students with the knowledge and skills to identify and address pharmacist burnout, an active learning activity was implemented in the Winter 2020 offering of Professional Practice for 3rd year students at the University of Waterloo School of Pharmacy. Immediate feedback from students was positive, but would this novel learning activity have a long-term impact on students as they enter the profession? This is the question that our team investigated through the LITE Seed Grant. Students who participated in the activity were invited to one-on-one telephone interviews. Interviews were conducted 6- and 18-months post-activity, with transcripts undergoing qualitative thematic analysis. This presentation will share the findings of our research and explore its significance to pharmacy education, as well as the broader University of Waterloo community.

Takeaways:

- The insight of pharmacy students' mental health as they navigate the occupational hazard of burnout in their training.
- Understand the importance of incorporating wellness activities among traditional curricula.

References:

- Barker A. The science behind pharmacist burnout is scary: here is what to do about it. Pharmacy Times. https://www.pharmacytimes.com/contributor/alex-barker-pharmd/2018/01/the-science-behind-pharmacist-burnout-is-scary-heres-what-to-do-about-it. Published February 25, 2018. Accessed February 1, 2020.
- Bruce SP. Recognizing stress and avoiding burnout. Curr Pharm Teach Learn. 2009;1(1):57-64. doi:10.1016/j.cptl.2009.05.008.
- Fernandes HVJ, Richard C, Bynkoski K, Ewan B, Houle SKD. Check-In: An Educational Activity to Address Well-Being and Burnout among Pharmacy Students. Pharmacy (Basel). 2020;8(4):184. Published 2020 Oct 8. doi:10.3390/pharmacy8040184
- President's Advisory Committee on Student Mental Health. Final report. https://uwaterloo.ca/mental-health-wellness/sites/ca.mental-health-wellness/files/uploads/files/pac-smh_final_report_final_march12.pdf. Published February 16, 2018. Accessed February 1, 2020.

Session 105: Alternative Session - Programming a Better Math Experience for my Students

Edna James, Algoma University

Ana Lucia Vargas Sandoval, Bolster Academy

My colleague, Ana Lucia Vargas Sandoval (Bolster Academy), and I will introduce the concepts of a "growth mindset" versus a "fixed mindset". We will discuss rewarding progress and process versus intelligence and answers   and the effect on the outcomes in my first-year university math classes. My topic is relevant to any field because "growth" and "fixed" mindsets affect the "drive to learn" in any area. Also, in addition to the sciences and engineering, math skills are important or useful in a broad range of areas, for example art, psychology, social sciences and business.

I will discuss my strategies for prioritizing learning before grades. I will share the results of two years of my partnership with Bolster Academy to teach first-year pre-calculus, calculus and linear algebra. I will share such data as grades and student evaluations to demonstrate my students' success and changes in attitude before and after partnering with Bolster Academy.

Mock Math Class. There will be a brief, interactive introduction to the platform and then a selection of elementary to high school level problems geared towards a general audience, but modelled on my new teaching strategies. Participants will be encouraged to make mistakes and learn from them, get curious, ask questions and experiment. Participants will experience a self-study interactive tool that grades the work, gives hints how to improve, lets them try again, and praises them when they got it right. All randomized and in real time. I will be available for participants' questions. Instead of just talking about it, my goal is for participants to experience first-hand the reasons why my students are more frequently using the words "math" and "fun" in the same sentence.

Conclusion Session. I anticipate that participants may experience a positive shift along the spectrum that contains fixed mindset on one end and growth mindset on the other. Participants may feel more motivated to engage with math problems in the future. Finally, I want to discover if participants think their own students would benefit from this math teaching strategy.

Takeaways:

- Interactive, Electronic Math Lessons presented for a general audience.
- Participants will have fun learning something, even if they haven't done math in a while.
- Rewarding progress and process versus intelligence and answers affects a "growth mindset" versus a "fixed mindset".
- Participants will consider whether their own students would benefit from this helpful learning strategy.

References:

- Dweck, C. S. (2008). Mindsets and math/science achievement. http://www.growthmindsetmaths.com/uploads/2/3/7/7/23776169/mindset_and_math_science_achievement_-_nov_2013.pdf
- Dweck, C. S. (2014). Power of Yet, TEDxNorrköping, https://www.youtube.com/watch?v=J-swZaKN2Ic&t=47s&ab_channel=TEDxTalks
- Jennifer Gunn, Building a Growth Mindset for Teachers, https://resilienteducator.com/classroom-resources/growth-mindset-for-teachers/

Session 106: Panel Discussion - Some Benefits of Embedded Writing and Communication Centre Programs in Undergraduate Communication Courses

Stephanie White, Writing and Communication Centre, University of Waterloo

Clare Bermingham, Writing and Communication Centre, University of Waterloo

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

Danielle LaBrash, Arts, University of Waterloo

Lamees Al Ethari, English, University of Waterloo

Tim Paci, Communication Arts, University of Waterloo

Lauri Jang, Arts, University of Waterloo

Urvashi Shelke, Legal Studies, University of Waterloo

In this panel, staff, faculty, and students will show how the ongoing partnership between the Arts First program and the Writing and Communication Centre (WCC) has positively impacted their teaching and learning. Our embedded peer tutor program enhances Arts First students' writing and communication development while also supporting instructors (Cheatle & Sanchez, 2021; Hall & Hughes, 2011; Haring-Smith, 2000). As a result, we've seen students' confidence and abilities improve, in keeping with research on similar programs (Miller, 2020; Regaignon & Bromley, 2011). Our workshops use evidence-based workshop pedagogy (Ryan & Kane, 2015) to provide accessible asynchronous modules for Arts First instructors to integrate into their courses. These workshops enhance instructors' teaching while engaging students with the WCC. Feedback tells us that students and instructors find these workshops invaluable for enhancing students' transferrable writing and communication strategies.

The moderators will open this panel by asking attendees to reflect, as they listen, on how a partnership with the WCC could enhance their own teaching or learning. Then the 6 presenters will each speak for 5 minutes: the peer tutor coordinator will describe the peer tutor program, the workshop coordinator will describe the workshop program, and a director of Arts First, an Arts student, an Arts instructor, and a peer tutor will each explain what they've gained from the partnership. We'll save 20 minutes for discussion.

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

- Describe the Arts First/WCC workshop and peer tutor programs
- Identify how a partnership with the WCC requires and impacts many people
- Reflect on how a partnership with the WCC could enhance their own courses

This panel features many presenters, but each is essential to our goals of demonstrating the amount of people required to make this partnership work and the amount of people this partnership impacts.

Takeaways:

- An ongoing partnership between the Arts First program and the Writing and Communication Centre (WCC) positively impacts students, staff, and instructors through embedded peer tutors and course-integrated workshops.

References:

- Cheatle, J., & Sanchez, C. L. (2021). Writing center ambassadors: Engaging campus organizations through embedded consultants. Praxis, 18(3). http://www.praxisuwc.com/183-cheatle-and-sanchez

- Hall, E. & Hughes, B. (2011). Preparing faculty, professionalizing fellows: Keys to success with undergraduate writing fellows in WAC. The WAC Journal, 22: 21–40. https://doi.org/10.37514/WAC-J.2011.22.1.03
- Haring-Smith, T. (2000). Changing students' attitudes: Writing Fellows programs. In S. H. McLeod & M. Soven (Eds.), Writing Across the Curriculum: A Guide to Developing Programs (pp. 123–131). The WAC Clearinghouse.
- Miller, L. K. (2020). Can we change their minds? Investigating an embedded tutor's influence on students' mindsets and writing. Writing Center Journal, 38(1–2), 103–129. https://link.gale.com/apps/doc/A665148905/AONE?u=anon~aa446b8f&sid=googleScholar&xid=ae86aef0
- Regaignon, D. Rossman., & Bromley, P. (2011). What difference do Writing Fellows programs make? The WAC Journal, 22(1), 41–63. https://doi.org/10.37514/WAC-J.2011.22.1.04
- Ryan, H., & Kane, D. (2015). Evaluating the effectiveness of writing center classroom visits: An evidence-based approach. The Writing Center Journal, 34(2), 145–172. http://www.jstor.org/stable/43442808

Session 107: Workshop - Fostering Student-Faculty-Staff Partnerships through Open Pedagogy

Heather Campbell, Western University

Emily Carlisle-Johnson, Western University

Jamie Kim, Western University

Hailey Zanth, Western University

The COVID-19 pandemic has taught us that partnerships are critical to maintaining our well-being. Course redesigns see us learning from students in new ways, but the individual workload has been crushing (for us and them) (1,2). Finding space to build partnerships, to take advantage of our last two years of learning, is challenging. Open pedagogy, though, may offer one solution. Open Pedagogy ask students to create information or resources as course work that can then be made Open and reusable to others (3). Open pedagogies can contribute to more diverse and inclusive classrooms, as students actively shape the knowledge commons and reflect on who is considered an authority or a creator, including themselves (4, 5). Where instructors may not have capacity to adapt courses yet again, Open Pedagogy can bring in third partners, such as our staff and librarian colleagues, who bring expertise in Open pedagogical and publishing practices (6).

This workshop will explore Open Pedagogy as an example of meaningful student-faculty-staff partnership. Following an introduction, participants will collaborate to identify small- and large-scale examples of Open Pedagogy suitable for existing or future courses. Workshop facilitators (two graduate students, a librarian, and an educational developer/librarian) will model the relationship-focused approach Open pedagogies encourage, and share examples of Open Pedagogy from literature and lived experiences. Discussion questions will centre on the trust and relationships needed to make Open pedagogies –and teaching and learning partnerships– successful. The goal of the workshop, then, is to identify opportunities for integrating Open Pedagogy into a course by leveraging support and expertise from our partners.

By the end of the workshop, participants will be encouraged to:

- Articulate benefits of Open Pedagogy in fostering partnerships
- Identify connections between Open pedagogies and EDI priorities
- Identify opportunities for integrating open pedagogies into courses

Takeaways:

- Workshop attendees will have the opportunity to synchronously engage with student and librarian facilitators, along with conference attendees, about Open pedagogical partnerships.
- Participants will work together to create a handout of small- and large-scale Open pedagogies they can adapt or adopt for their new or existing courses. This handout will include examples from the literature and the lived experiences of the facilitators.
- Facilitators will provide an evaluation criteria resource that participants can use to assess future Open pedagogy ideas.

References:

(1) Washburn, M., Crutchfield, J., Roper, D.O., & Padilla, Y. (2021). Changes to MSW faculty workload resulting from COVID-19: an issue of equity. Journal of Social Work Education 57(1): S209-S223. https://doi.org/10.1080/10437797.2021.1934209
(2) Swanson, H.L., Pierre-Louis, C., Monjaras-Gaytan, L.Y., Zinter, K.E., McGarity-Palmer, R., & Clark Withington, M.H. (2021). Graduate student workload: pandemic challenges and recommendations for accommodations. Journal of Community Psychology 2021:1-18.

(3) Elder, A. (2019). Open pedagogy. In A. Elder (Ed.), The OER starter kit. Iowa State University Press. https://iastate.pressbooks.pub/oerstarterkit/

(4) DeRosa R., & Jhiangiani, R. (2017). Open pedagogy. In E. Mays (Ed.), A guide to making open textbooks with students. The Rebus Community for Open Textbook Creation. https://press.rebus.community/makingopentextbookswithstudents

(5) Brown, M., & Croft, B. (2020). Social annotation and an inclusive praxis for open pedagogy in the college classroom. Journal of Interactive Media in Education 2020(1): 1-8. https://eric.ed.gov/?id=EJ1253880.

(6) Fields, E., & Harper, A. (2020). Opening up information literacy: empowering students through open pedagogy. Scholarship of Teaching and Learning, Innovative Pedagogy 2(1): 4-15. https://digitalcommons.humboldt.edu/sotl_ip/vol2/iss1/1/

Concurrent Sessions (200): Wednesday, April 27 (2:00pm – 3:00pm ET)

Session 201: Presentations

201a: Instructor-Built Virtual Laboratories to Break Away From "Cookbook" Procedures

Leanne Racicot, Chemistry, University of Waterloo

Renzo Gutierrez, Chemistry, University of Waterloo

Marie Lippens, WatSPEED, University of Waterloo

Julia Burke, Centre for Extended Learning, University of Waterloo

Due to the coronavirus pandemic, we needed to shift the organic chemistry laboratory for non-majors online to comply with public health guidelines. The instructional team accepted that there was no online substitute to in-person completion of experiments to learn laboratory techniques, however we felt we could still train students to design their own experiments. It had been common practice to avoid "cookbook" style procedures in our courses for several years, preferring to guide students through the planning process by providing information about factors to consider (aim of the experimental step, chemical properties of reagents, safety principles). Laboratory videos are commonly used in the online laboratory to provide the content. However, based on student feedback, it was difficult to balance maintaining guided inquiry style while providing clear explanations of what the experimenters on camera were doing.

By discussing with instructors at other institutions, we identified a need for instructor-created virtual laboratories that would be free for students and easy to customize by teaching teams so the unique scenarios used in each institution can be incorporated. We identified Twine, an open-source story board program, as a good platform to build such virtual laboratories since the code can be edited. Our project was funded by the Virtual Learning Strategy from eCampus Ontario and allowed us to hire a dedicated coop assistant to perform much of the coding tasks required. Our undergraduate students already have multi-disciplinary skills, in this case between organic chemistry and computer science, and can contribute meaningfully to such cutting-edge projects. Student involvement is also valuable in projects aiming to build learning tools as they can use their recent experience to shape the future of undergraduate education.

We aim to use the "choose your own adventure" virtual labs to further engage students and help them learn experimental design principles. From the early student feedback, we have found that the incorporation of feedback for incorrect answers helps student dispel misconceptions around theoretical concepts.

This framework can be applied to other laboratory courses as well as lecture courses where storytelling and student's self-discovery is beneficial to achieving learning goals.

Takeaways:

- Building "choose your own adventure" style virtual laboratories allows to retain the experimental design learning objectives for introductory organic chemistry laboratories.
- Engaging students in the tool-building process allows to utilize their unique skillset and incorporate learner perspective into the design.

201b: Extended Reality (XR) Pedagogy and Technology: Collaboration to Help Grow the University of Waterloo's Capacity to Explore Innovation in Teaching and Learning with XR Technologies

Amna Idrees, Systems Design Engineering, University of Waterloo

Mark Morton, Centre for Teaching Excellence, University of Waterloo

Gillian Dabrowski, Centre for Extended Learning, University of Waterloo

Immersive Technologies like Augmented Reality, Virtual Reality, and Mixed Reality are rapidly becoming a next-generation communication technology. For example, Statistica reports the number of jobs projected to be enhanced by XR technologies worldwide from 2019-2030, will grow from 8 million in 2019 to 23 million in 2030 (Alsop, 2021). Not surprisingly, this potential of XR technologies has piqued the interest of those working in Higher Education. XR technologies are advancing rapidly and emerging across the disciplines in teaching and learning (Makhkamova, 2020).

Correspondingly, pedagogical partnerships between University of Waterloo academic units and instructors are advancing and contributing to building institutional knowledge of how Extended Reality (XR) technologies (such as, Virtual Reality (VR), Virtual Worlds/the Metaverse, and Augmented Reality (AR)) can potentially contribute to enhancing teaching and learning and create new opportunities for students. Using XR in teaching and learning requires acquiring knowledge of the technologies and how to apply them effectively for teaching and learning *within a discipline*. Each discipline can inform the development of virtual reality experiences. Molvig and Bodenheimer, a computer scientist and a historian who co-lead a university course on the topic of VR, discovered that teaching a course about VR inherently involves teachers and students collaborating across the disciplines to produce virtual experiences from a variety of different perspectives (2020). Finally, XR also requires fostering partnerships across campus – between students and instructors, instructors and IT, across departments, and more -- to plan and build sustainable infrastructure, facilities, hardware, software, and staff resources to deploy AR/VR services (McGrath, 2019). To this end, the presenters will highlight three UW Academic Support projects that are designed to assist instructors and academic units in their learning journey to understand what XR emerging technologies are and how the potential of these technologies is being investigated across Higher Education and industry.

Takeaways:

- Identify how to pursue learning about XR at the University of Waterloo (such as the Extended Reality Community of Practice and the Extended Reality resource website).
- Identify pedagogical opportunities and challenges associated with applying XR technologies mediums in the classroom and online (presenters will draw on a recent research project conducted in collaboration with the University of Guelph and the University of Manitoba instructional support units).
- Understand the benefits of partnerships in designing, developing, and deploying XR technologies for teaching and learning.
- Further explore and consider what XR could become in the next 5 years and assess whether students should learn about the emergence of these technologies, their potential, and how they can be used.

References:

- Alsop, T. (2021). Number of jobs enhanced by ar/vr worldwide 2019-2030. *Statista*.
- Makhkamova, A., Exner, J. P., Greff, T., & Werth, D. (2020). Towards a taxonomy of virtual reality usage in education: A systematic review. *Augmented Reality and Virtual Reality*, 283-296.
- McGrath, O. (2019, October). AR/VR Strategy Considerations for Academic Computing Services. *In Proceedings of the 2019 ACM SIGUCCS Annual Conference* (pp. 15-18).
- Molvig, O., & Bodenheimer, B. (2020). Interdisciplinarity and Teamwork in Virtual Reality Design. *The Journal of Interactive Technology & Pedagogy*.

201c: The Flood Resilience Challenge Serious Game as an Online Teaching and Learning Tool Across Multiple Disciplines and Class Sizes *

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

Evalyna Bogdan, University of Calgary

Nadine Ibrahim, Civil & Environmental Engineering, University of Waterloo

Flooding is one of Canada's costliest and most frequent disasters, however, traditional engineering approaches do not adequately address flooding problems. Engineering students lack sufficient training for understanding complex socio-environmental problems and have limited curricular opportunities to gain skills in working together to address such problems. To address this challenge, we created collaborations between multiple disciplines (environmental sociology, engineering, and design), academics and students, as well as academia and non-academia, in designing, revising, and implementing the Flood Resilience Challenge (FRC) game. This includes professionals in flood management mentoring students throughout the FRC game. The FRC is a serious game (for education and entertainment) that is an experiment in shifting away from the limitations of traditional engineering educational approaches to flood risk management, and the online version is an alternative to face-to-face, lecture-style teaching. As an innovative teaching and learning tool, the FRC aims to build the capacity of stakeholders to improve flood resilience and enhance flood risk governance, including collective decision-making, through role-playing, experiential learning, and social learning. To foster deep learning for students, the FRC game seeks to promote a better understanding of the complexity of flooding issues, such as governance and risk management, as well as communication and negotiation skills.

This research project, funded by the Learning Innovation and Teaching Enhancement (LITE) Grant, investigates the effectiveness of the FRC game as an online teaching and learning tool and compares the results across different disciplines and class sizes: an engineering course with over 100 students and a water management course with 15 students. The research findings on the FRC game have relevance for incorporating the FRC game into a range of disciplines focusing on complex socio-environmental problems and for providing engaging online educational activities which are especially critical during a pandemic.

Takeaways:

- The logistics of incorporating the FRC game into academic courses.
- The design of the FRC game for enhancing students' understanding of complex socio-environmental problems from a range of stakeholder perspectives.
- The value of role-playing and experiential and social learning in students' learning outcomes and level of engagement.

References:

- Bots, P., & Van Daalen, E. (2007). Functional design of games to support natural resource management policy development. Simulation & Gaming, 38(4), 512–532. https://doi.org/10.1177%2F1046878107300674
- Flood, S., Cradock-Henry, N. A., Blackett, P., & Edwards, P. (2018). Adaptive and interactive climate futures: Systematic review of 'serious games' for engagement and decision-making. Environmental Research Letters, 13(6), 063005.
- Fustik, V., Rogleva, N. K., & Petrova, N. (2019). Gamification for practical engineering education in project and risk management [Conference proceeding]. IEEE EUROCON 2019 18th International Conference on Smart Technologies, Novi Sad, Serbia, pp. 1–4, https://10.1109/EUROCON.2019.8861900
- Gilbert, B. L., Banks, J., Houser, J. H. W., Rhodes, S. J., and Lees, N. D., (2014). Student development in an experiential learning program. Journal of College Student Development, 55(7), 707–713.

- Kamaruzaman, F. M., Hamid, R., Mutalib, A. A. (2017). A review on issues and challenges in incorporating complex engineering problems in engineering curriculum and proposed solutions [Conference proceeding]. 2017 7th World Engineering Education Forum (WEEF), Kuala Lampur, Malaysia, pp. 697-701. https://10.1109/WEEF.2017.8467167
- McCarthy, D. D., Crandall, D. D., Whitelaw, G. S., General, Z., & Tsuji, L. J. (2011). A critical systems approach to social learning: Building adaptive capacity in social, ecological, epistemological (SEE) systems. Ecology and Society, 16(3), 18. http://www.ecologyandsociety.org/ vol16/iss3/art18/
- Moser, S. (2012). Getting real about it: Navigating the psychological and social demands of a world in distress. In D. R. Gallagher, R. N. L. Andrews & N. L. Christensen (Eds.), Sage handbook on environmental leadership (pp. 432–440). Sage.
- Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a general theory of planning. Policy Sciences, 4(2), 155–169.
- Rodela, R., Cundill, G., & Wals, A. E. (2012). An analysis of the methodological underpinnings of social learning research in natural resource management. Ecological Economics, 77, 16–26. https://doi.org/ 10.1016/j.ecolecon.2012.02.032
- Salvini, G., Van Paassen, A., Ligtenberg, A., Carrero, G. C., & Bregt, A. K. (2016). A role-playing game as a tool to facilitate social learning and collective action towards Climate Smart Agriculture: Lessons learned from Apuí, Brazil. Environmental Science & Policy, 63, 113–121. https://doi.org/10.1016/j.envsci.2016.05.016
- Shrubsole, D. (2013). A history of flood management strategies in Canada revisited. In E. C. H. Keskitalo (Ed.), Climate change and flood risk management: Adaptation and extreme events at the local level (pp. 95–120). Edward Elgar.
- University of Waterloo. (2008). Academic Program Reviews: Undergraduate Degree Level Expectations. https://uwaterloo.ca/academic-program-reviews/degree-level-expectations/undergraduate-degree-level-expectations
- University of Waterloo. (2011). The Task Force on Innovative Teaching Practices to Promote Deep Learning at the University of Waterloo: Final Report. https://uwaterloo.ca/centre-for-teaching-excellence/sites/ca.centre-for-teaching-excellence/files/uploads/files/Task%20Force%20Report%20on%20Deep%20Learning_0.pdf

Session 202: Presentations

202a: Experiential Learning in a Virtual AI Natural Language Setting

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Juan Carlos Segovia Garza, Electrical and Computer Engineering, University of Waterloo

David Wang, Electrical and Computer Engineering, University of Waterloo

Programming skills continue to be an issue in first year STEM courses. Depending on their high school preparation, some students enter university with significant computer programming experience. Other students may have little or no computer programming exposure [1]. Programming is best learned in a collaborative experiential environment [2], which is why many students become experts only after they spend time in a work environment. In this presentation, a virtual experiential learning platform [3], using proprietary natural language AI based on IBM Watson (from Ametros Learning Inc.), is used to provide a safe and low stakes platform to assess and potentially teach students how to program. Students are registered individually into a virtual team of software programmers. The students interact with characters in the AI platform in a manner that replicates real programmers working in a team environment. The aim of this research is to recreate a low-risk student-employer partnership, which does not jeopardize future employment.

The goals are to assess the level of programming experience of each student, to direct the student to background programming material appropriate for their current level of programming skills, to provide an opportunity to code as part of a larger software project as well as to provide hard deadlines and ethical dilemmas for the students to navigate through, in a safe virtual environment. Virtual experiential learning platforms could be used as a tool in other disciplines to support and expand existing partnerships for students that require additional support to what instructors can provide, live in isolated communities, or are in situations that limit their access to other resources. [4]

The presentation will demonstrate the platform and present some preliminary results on how successfully the goals were achieved. Future work in the use of virtual environments to expose students to experiential learning will be presented.

Takeaways:

- Validation of an AI Natural Language Virtual Environment to provide a safe and low stakes environment for learning.
- Validation of an AI Natural Language Virtual Environment to assess programming experience.

References:

1. Hagan, Dianne, and Selby Markham. "Does it help to have some programming experience before beginning a computing degree program?." Proceedings of the 5th annual SIGCSE/SIGCUE ITiCSEconference on Innovation and technology in computer science education. 2000.
2. Kolb, D. A. (2014). Experiential Learning: Experience as the Source of Learning and Development. FT Press.
3. Psotka, Joseph (1 November 1995). "Immersive training systems: Virtual reality and education and training". Instructional Science. 23 (5): 405–431
4. Vázquez-Cano, Esteban (15 July 2021). "Artificial intelligence and education: A pedagogical challenge for the 21st century". Educational Process: International Journal. 10(3): 7-12.

202b: "This Will Definitely Inspire my Activism in the Future": A Culture Jam of Experiential Learning

Laura Cayen, Western University

Culture jamming (CJ), a protest and activism tactic with roots in anti-capitalist ideology, uses the raw materials of popular culture to challenge relations of domination (Dery 1993). Constituting critical public pedagogy, CJ seeks to engage learners corporeally through the formation of participatory, resistant cultural production and a poetic community politic (Sandlin and Milam 2008). Using CJ in the classroom has the potential to encourage student partnerships with other students and with the public. This project examines the use of CJ in a third-year course called Gender, Sexuality, and Cultural Resistance: Making Culture Jam. Students were tasked with a "Sites of Resistance" assignment where they planned, executed, and reflected on a CJ project on a topic of importance to their group.

CJ aligns with many of the goals of Experiential Learning (EL), with its emphasis on allowing students to clarify their own interests and values, and to collaborate meaningfully with each other and with communities (Western Student Experience 2019). However, CJ has the potential to conflict with the Ministry of Training, Colleges, and Universities' (2015) emphasis on workplace readiness and employability as key outcomes of EL activities due to CJ's commitment to anti-capitalism. I contribute to feminist critiques of EL (Warren and Rheingold 1996) to argue for the value of EL projects outside of this turn to the neoliberalization of the university.

I offer an analysis of student reflection papers on their CJ project, where students responded to prompts relating to academic, personal, and civic engagement (Ash and Clayton 2009). I highlight three themes to emphasize the utility of CJ as critical pedagogy, including student affective engagement around their perceived success of their project, negotiations of student partnerships within their groups and with the public, and their cautious exploration of the applicability of activist training to their desired career paths.

Takeaways:

- Explore the principles of feminist pedagogy and culture jamming as an activist technique, critical pedagogy, and an important contribution and challenge to experiential learning.
- Assess the value of employability as an aim of experiential learning or university education.
- Prioritize student reflection and affective engagement as evidence of the achievement or assessment of learning outcomes.

References:

- Ash, S. and Clayton, P. (2009). Generating, deepening, and documenting learning: The power of critical reflection in applied learning. Journal of Applied Learning in Higher Education 1(1), 25-48.
- Dery, M. (1993). *Culture jamming: Hacking, slashing and sniping in the empire of signs* (Vol. 25). Westfield, NJ: Open Media.
- Ministry of Training, Colleges and Universities (2015). Focus on Outcomes, Centre on Students: Perspectives on Evolving Ontario's University Funding Model. The Ontario Public Service. Accessed August 23, 2019 from http://www.tcu.gov.on.ca/pepg/audiences/universities/uff/report.html#strategic
- Sandlin, J. A., & Milam, J. L. (2008). "Mixing Pop (Culture) and Politics": Cultural Resistance, Culture Jamming, and Anti-Consumption Activism as Critical Public Pedagogy. *Curriculum Inquiry*, *38*(3), 323-350.
- Warren, Karen and Rheingold, Alison (1996). Feminist Pedagogy and Experiential Education: A Critical Look (Ch. 11, pp. 118-129). In Karen Warren (Ed), *Women's Voices in Experiential Education*. Iowa: Kendall/Hunt Publishing Company.

- Western Student Experience (2019). Experiential Learning Principles and Types. Western University. Accessed March 10, 2022 at http://experience.uwo.ca/about/principles_and_definitions.html

202c: Experiential Learning Partnerships: Working with Letters from the Archives *

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

Grit Liebscher, Germanic & Slavic Studies, University of Waterloo

Nick Richbell, Library, University of Waterloo

Angelina Stuckler, Germanic & Slavic Studies, University of Waterloo

Sandra Kull, Germanic & Slavic Studies, University of Waterloo

In this talk that combines practice-based and research-based aspects (supported through a LITE grant), we will discuss an experiential learning project (Kolb, 2015; Wurdinger & Carlson, 2010) that arises from a collaboration between a Canadian university's German program and a library's Special Collections & Archives. The project centered around working with a collection of letters donated to the library by a German immigrant family to Canada, in particular the transcription, translation and annotation of some of these letters by teams of students. In total, the letter collection contains about 6000 pages of personal correspondence between members of the family living in Canada and in Germany between 1918 and 2008.

This talk includes a discussion of two important partnerships in this experiential learning project: 1) between the course (instructor and students) and the library and 2) between seminar course members who were working in teams. For this discussion, research insights will be presented, as gained from a qualitative analysis of students' reflections, interviews, and work meetings. In addition, some practice-based observations will be made by graduate student presenters who participated in the project themselves. We will address questions such as: What was the nature of the partnerships and how did each party profit from them? What skills do students believe they gained, especially through the partnerships?

The talk will end with a discussion of prospects for future iterations of the courses and provide insights for instructors who want to incorporate similar experiential learning components into their courses.

Takeaways:

- Experiential learning comes with challenges for the instructor as well as students (to be discussed) but has highly gratifying aspects (also to be discussed).
    - These include motivational aspects and learning outcomes that cannot be achieved in a regular (lecture) classroom.
- An important part of experiential learning are partnerships, in this case between course instructor/students and the library as well as between students (in working in teams).

References:

- Kolb, D. A. (2015): Experiential Learning. Experience as the Source of Learning and Development. 2. Ed. Upper Saddle River, NJ: Pearson Education, Inc.
- Wurdinger, S. D., & Carlson, J. A. (2010). Teaching for experiential learning: Five approaches that work. Lanham, MD: Rowman & Littlefield Education.

Session 203: Presentations

203a: Lights, Camera, Reaction! Evaluating Emotions in Environment Films *

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

Shefaza Esmail, School of Environment, Resources and Sustainability, University of Waterloo

Misty Matthews-Roper, School of Environment, Resources and Sustainability, University of Waterloo

There is a lack of affective awareness in the way we instruct students about environmental issues (Ray, 2020; Verlie, 2021). Despite research demonstrating that knowledge about climate change impacts is affecting mental health (Doherty & Clayton, 2011), emotional responses to this crisis are rarely discussed in sustainable education. Films have been shown to be a positive means of triggering emotions to facilitate critical thinking and instructing students about complex themes like ethical concerns (Blasco et al., 2018; Perumal, 2013). The aim of this research was to investigate the impacts of film with viewer-response activities (adapted from reader-response pedagogy (Davis, 1992)) on undergraduate students' emotional and cognitive awareness in online learning. Films were selected for connection to course themes, online accessibility, and diversity in types of film (e.g., documentary, fiction) and emotional messaging (e.g., uplifting, disheartening).

Participants were recruited from the 29 students enrolled in the environmental film course. In total, there were twelve participants from three faculties (ten from Environment and one each from Arts and Health), ranging in total years at the university: one in first year, three in second, four in third, and four in fourth year. The small sample size limits the validity of statistical analyses but provides valuable information as a preliminary study. Study participants completed pre- and post-surveys, conveying, through Likert scales, feelings on climate change, emotional awareness, and opinion of films as an education tool. Weekly reflections were evaluated using qualitative coding and sentiment analysis to assess cognitive and emotional engagement. Study participants also completed exit interviews, reflecting on their course experience. The results show that students have emotional responses to course content but are not accustomed to reflecting on these experiences. Through ongoing film-watching and reflection-writing students undergo changes in perspective and gain a deeper sense of self-awareness. We conclude that films are effective and engaging tools for online course delivery, however, it is critical to pair films with viewer-response activities to allow students to explore their emotional responses to complex topics and guide them in challenging their preconceptions.

By end of session, participants will:

- Explain the merit of integrating films with student reflections for enhancing student cognitive and emotional awareness

Takeaways:

- Films are a highly effective and engaging tools for course delivery, which should be integrated more readily and intentionally in higher education classrooms, especially in online learning.
- Films alone are not effective at engaging student cognitive and emotional awareness. It is critical to pair films with viewer-response activities, such as individual reflections for students to explore their feelings and articulate their thoughts. Viewer-responses activities also allow students to explore their biases through prompt questions in reflections and through online discussions with peers with differing perspectives and experiences. Students believe they are cognitively and emotionally aware but require prompts to guide them in challenging and questioning their biases and preconceptions and to explore their feelings. Space and guidance to do so within course activities, such as through reflections, allows students to form informed opinions and skills to clearly articulate their points of view.

References:

Films

- Baichwal, Jennifer, Edward Burtynsky, Nicholas de Pencier, and Alicia Vikander. 2019. Anthropocene: The Human Epoch. Documentary. Mercury Films.
- Cameron, James, Sam Worthington, Zoe Saldana, and Sigourney Weaver. 2009. Avatar. Action, Adventure, Fantasy. Twentieth Century Fox, Dune Entertainment, Lightstorm Entertainment.
- Chester, John, John Chester, Molly Chester, and Beauden Chester. 2019. The Biggest Little Farm. Documentary. Diamond Docs, FarmLore Films.
- Fleischer, Richard, Charlton Heston, Edward G. Robinson, and Leigh Taylor-Young. 1973. Soylent Green. Crime, Mystery, Sci-Fi. Metro-Goldwyn-Mayer (MGM).
- Gabbert, Laura, Justin Schein, Colin Beavan, and Michelle Conlin. 2010. No Impact Man: The Documentary. Documentary. Eden Wurmfeld Films, Shadowbox Films Inc.
- Miller, Amy, Daryl Hannah, and Karine Vanasse. n.d. The Carbon Rush. Documentary. Byron A. Martin Productions, Wide Open Exposure Productions, Bell Broadcast and New Media Fund.
- Morgen, Brett, Jane Goodall, Hugo Van Lawick, and Hugo Eric Louis van Lawick. 2017. Jane. Documentary, Biography. National Geographic Studios, Public Road Productions.
- Pratt, Hawley, Eddie Albert, Bob Holt, and Athena Lorde. 1972. The Lorax. Animation, Short, Drama. The Cat in the Hat Productions, CBS, DePatie-Freleng Enterprises (DFE).
- York, Steve, Ben Kingsley, Salvador Allende, and Shahla Arasteh. 1999. A Force More Powerful. Documentary. Santa Monica Pictures, WETA.

Literature

- Balsiger, Jörg, Ruth Förster, Clemens Mader, Ueli Nagel, Helene Sironi, Sandra Wilhelm, and Anne B Zimmermann. 2017. "Transformative Learning and Education for Sustainable Development". GAIA - Ecological Perspectives for Science and Society 26 (4): 357-59 https://doi.org/10.14512/gaia.26.4.15.
- Butterwick, Shauna and Lawrence, Randee Lipson. "Creating Alternative Realities: Arts-Based Approaches to Transformative Learning". In Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education, edited by Jack Mezirow, Edward W. Taylor and Associates, 35-45. San Francisco: Jossey-Bass.
- Davis, Judith Rae. 1992. "Reconsidering Readers: Louise Rosenblatt and Reader-Response Pedagogy." Research and Teaching in Developmental Education 8 (2): 71–81.
- Diduck, Alan, A. John Sinclair, Glen Hostetler, and Patricia Fitzpatrick. 2012. "Transformative Learning Theory, Public Involvement, and Natural Resource and Environmental Management." Journal of Environmental Planning and Management 55 (10): 1311–30. https://doi.org/10.1080/09640568.2011.645718.
- Dirkx, John M. and Smith, Regina O. "Facilitating Transformative Learning: Engaging Emotions in an Online Context". In Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education, edited by Jack Mezirow, Edward W. Taylor and Associates, 57-66. San Francisco: Jossey-Bass.
- Doherty, Thomas J., and Susan Clayton. 20110509. "The Psychological Impacts of Global Climate Change." American Psychologist 66 (4): 265. https://doi.org/10.1037/a0023141.
- Ensmann, Suzanne, Aimee Whiteside, Lina Gomez-Vasquez, and Ronda Sturgill. 2021. "Connections Before Curriculum: The Role of Social Presence During COVID-19 Emergency Remote Learning for Students." Online Learning 25 (3). https://doi.org/10.24059/olj.v25i3.2868.
- Freire, P. and Ramos, M. Bergman. 1970. Pedagogy of the oppressed. New York: Seabury Press.
- Hathaway, Mark D. 2017. "Activating Hope in the Midst of Crisis: Emotions, Transformative Learning, and 'The Work That Reconnects.'" Journal of Transformative Education 15 (4): 296–314. https://doi.org/10.1177/1541344616680350.
- Head, Lesley. 2016. Hope and Grief in the Anthropocene. Routledge Research in the Anthropocene. New York: Routledge.

- Hendersson, Heidi, and Christine Wamsler. 2020. "New Stories for a More Conscious, Sustainable Society: Claiming Authorship of the Climate Story." Climatic Change 158 (3): 345–59. https://doi.org/10.1007/s10584-019-02599-z.
- Howie, Peter, and Richard Bagnall. 2013. "A Critique of the Deep and Surface Approaches to Learning Model." Teaching in Higher Education 18 (4): 389–400. https://doi.org/10.1080/13562517.2012.733689.
- Hu, Minqing and Bing Liu. 2004. "Mining and summarizing customer reviews." In Proceedings of the tenth ACM SIGKDD international conference on Knowledge discovery and data mining, KDD'04, 168–177, New York, NY, USA. ACM.
- Kron, Assaf, Yaacov Schul, Asher Cohen, and Ran R. Hassin. 2010. "Feelings Don't Come Easy: Studies on the Effortful Nature of Feelings." Journal of Experimental Psychology: General 139 (3): 520–34. https://doi.org/10.1037/a0020008.
- Kitchenham, Andrew. 2008. "The Evolution of John Mezirow's Transformative Learning Theory". Journal of Transformative Education 6 (2): 104-123. https://doi.org/10.1177/1541344608322678.
- Kuhn, T. S. 1962. The Structure of Scientific Revolutions. The Structure of Scientific Revolutions. University of Chicago Press: Chicago.
- Masson-Delmotte, Valérie, Panmao Zhai, Anna Pirani, Sarah L. Connors, C. Péan, Sophie Berger, Nada Caud, et al., eds. 2021. "Summary for Policymakers." In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press.
- Mezirow, Jack. 1978. "Perspective Transformation." Adult Education 28 (2): 100–110. https://doi.org/10.1177/074171367802800202.
- Mezirow, Jack. 1991. Transformative Dimensions of Adult Learning. San Francisco: Jossey-Bass.
- Mezirow, Jack. 2010. "Transformative Learning Theory". In Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education, edited by Jack Mezirow, Edward W. Taylor and Associates, 18-31. San Francisco: Jossey-Bass.
- Moser, S.C. 2020. "The Work after 'It's Too Late' (to Prevent Dangerous Climate Change)." Wiley Interdisciplinary Reviews: Climate Change 11 (1). https://doi.org/10.1002/wcc.606.
- Motzkus, Christine, Racquel J. Wells, Xingyue Wang, Sonia Chimienti, Deborah Plummer, Janice Sabin, Jeroan Allison, and Suzanne Cashman. 2019. "Pre-Clinical Medical Student Reflections on Implicit Bias: Implications for Learning and Teaching." PLOS ONE 14 (11): e0225058. https://doi.org/10.1371/journal.pone.0225058.
- Norgaard, Kari Marie. 2011. Living in Denial: Climate Change, Emotions, and Everyday Life. MIT Press.
- Petkari, Eleni. 2017. "Building Beautiful Minds: Teaching Through Movies to Tackle Stigma in Psychology Students in the UAE." Academic Psychiatry 41 (6): 724–32. https://doi.org/10.1007/s40596-017-0723-3.
- Pihkala, Panu. 2018. "Eco-Anxiety, Tragedy, and Hope: Psychological and Spiritual Dimensions of Climate Change." Zygon® 53 (2): 545–69. https://doi.org/10.1111/zygo.12407.
- Quesada-Embid, Mercedes. "Eco-crimes and Eco-redemptions: Discussing the Challenges and Opportunities of Personal Sustainability". In Learner-Centered Teaching Activities for Environmental and Sustainability Studies, edited by Loren B. Byrne, 57-64. Switzerland: Springer International Publishing. https://doi.org//10.1007/978-3- 319-28543-6_6.
- Ray, Sarah Jaquette. 2020. Field Guide to Climate Anxiety: How to Keep Your Cool on a Warming Planet. Oakland, California: University of California.
- Sahakian, Marlyne, and Gill Seyfang. 2018. "A Sustainable Consumption Teaching Review: From Building Competencies to Transformative Learning." Journal of Cleaner Production 198 (June). https://doi.org/10.1016/j.jclepro.2018.06.238.
- Taylor, Edward W. 1997. "Building Upon the Theoretical Debate: A Critical Review of the Empirical Studies of Mezirow's Transformative Learning Theory." Adult Education Quarterly 48 (1): 34-59.

- Taylor, Edward W. 2010. "Fostering Transformative Learning". In Transformative Learning in Practice: Insights from Community, Workplace, and Higher Education, edited by Jack Mezirow, Edward W. Taylor and Associates, 3-17. San Francisco: Jossey-Bass.
- Tomlin, Kathleen A., Matthew L. Metzger, and Jill Bradley-Geist. 2021. "Removing the Blinders: Increasing Students' Awareness of Self-Perception Biases and Real-World Ethical Challenges Through an Educational Intervention." Journal of Business Ethics 169 (4): 731–46.
- Verlie, Blanche. 2019. "Bearing Worlds: Learning to Live-with Climate Change." Environmental Education Research 25 (5): 751–66. https://doi.org/10.1080/13504622.2019.1637823.
- Verlie, Blanche. 2021. Learning to Live with Climate Change: From Anxiety to Transformation. London: Routledge. https://doi.org/10.4324/9780367441265.
- Weimer, Maryellen. (2002). Learner-centered teaching: five key changes to practice. San Francisco: Jossey-Bass.
- Yusoff, Kathryn, and Jennifer Gabrys. 2011. "Climate Change and the Imagination." Wiley Interdisciplinary Reviews: Climate Change 2 (4): 516–34. https://doi.org/10.1002/wcc.117.

203b: Undergraduate Student Perspectives of Failure: How can Instructors Foster Resilience and Encourage Help-Seeking?

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Failure is an important part of the learning process as it provides opportunities to reflect and modify study habits [1,2], has been shown to increase the understanding of concepts [3], and can support the development of resilience, an important transferrable skill within and beyond the university context. Despite these benefits, many students hold a negative view of failure, potentially leading to fear of failure and risk avoidance [4]. We investigated undergraduate student perspectives of failure across disciplines, and the influence of instructor feedback and classroom discussions on students' view of failure.

Undergraduate students at the University of Toronto Mississauga were invited to participate in an online survey (n = 303 participants) consisting of Likert-scaled and open-ended questions on perceptions of failure, instructor feedback, and help-seeking. We found that when instructors discussed with their students how to best respond to feedback, students were more likely to view small failures as a helpful part of the learning process (p = 0.012). Further, when instructors discussed strategies to best respond to failure, students were more likely to view small failures as helpful for learning (p = 0.006) and less likely to view weak performance early in a course as an indication of future weak performance (p = 0.043). Preliminary analyses also identified differences in perceptions of failure and likelihood for help-seeking across disciplines, which suggests a need for interdisciplinary partnerships to best support student resilience.

In addition to findings of the study, strategies to shift student perspectives on failure will be discussed in in this session. Strategies include incorporating failure-based discussions in the classroom that are student-led, allowing them to share their voices and experiences. This may help students engage positively with failure, take an active role in their learning, and maintain willingness to engage in future challenges.

Takeaways:

- Failure is an important part of the learning process, but many students remain risk-adverse and have a fear of failure. Developing resilience is an important transferable skill that will allow students to be successful in academia and beyond.
- Instructors can help develop resilience and encourage help-seeking by incorporating failure-based discussions in their classrooms. Students were more likely to view small failures as learning opportunity when their instructors discussed the role of failure in learning and strategies to best respond to failure. - Such discussions may help students engage positively with failure, take an active role in their learning, and maintain willingness to engage in future challenges.

References:

(1) Henry, M. A., Shorter, S., Charkoudian, L., Heemstra, J. M. & Corwin, L. A. (2019) FAIL Is Not a Four-Letter Word: A Theoretical Framework for Exploring Undergraduate Students' Approaches to Academic Challenge and Responses to Failure in STEM Learning Environments, CBE Life Sci Educ. 18, ar11.
(2) Simpson, A. & Maltese, A. (2017) "Failure Is a Major Component of Learning Anything": The Role of Failure in the Development of STEM Professionals, Journal of Science Education and Technology. 26, 223-237.
(3) Kapur, M. (2015) Learning from productive failure, Learning: Research and Practice. 1, 51-65.
(4) Nunes, K., S. Du, R. Philip, M. Mourad, Z. Mansoor, N. Laliberté, and F. Rawle. 2021. Science students' perspectives on how to decrease the stigma of failure. FEBS Open Bio. DOI 10.1002/2211-5463.13345

203c: Improving Learner Self-Efficacy in STEM

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There are many factors that influence student success in science, technology, engineering, and math (STEM) programs, but one that appears to inhibit many students is lack of self-efficacy; that is, one's belief in their ability to succeed. Studies show a significant positive correlation between self-efficacy and performance in math courses (for example [5,8]). In this presentation, we will review studies that show underrepresented groups in particular could benefit from teaching methods that improve self-efficacy [3,6,10,12], and describe some of these teaching methods in more detail.

Many teaching methods that improve self-efficacy involve groupwork or mentorship [2,4,9,11,12]. These methods embody the themes of student-centered and experiential partnerships. For instance, groupwork gives students opportunities to teach concepts to their peers, letting them be "experts" in the learning environment. Importantly, active learning techniques intended to improve student self-efficacy may have the opposite effect in classrooms where stereotype threat, that is, situations in which one feels at risk of confirming negative stereotypes about their group, is present [1,7]. We will present effective ways to incorporate groupwork and mentorship into STEM courses, as well as considerations for situations where stereotype threat is present.

With the rise of technology, STEM programs have become more popular and many non-STEM programs require some STEM courses. We believe an interdisciplinary approach is needed to develop effective teaching methods which address the wide range of academic and social backgrounds among students in our STEM courses. Therefore, we take an interdisciplinary approach to the topic of self-efficacy in STEM. The strategies we will present will be applicable to any instructors with STEM components in their classes.

By the end of this presentation, participants should be able to:
1) Recognize that improving self-efficacy in STEM improves the performance and retention of students, particularly from underrepresented groups.
2) Recognize student-centered and experiential partnerships can improve self-efficacy.
3) Describe how one could implement a teaching method that improves self-efficacy.

Takeaways:

- Self-efficacy is an important determinant of student success and retention in STEM.
- Active learning techniques such as groupwork and mentorship can be used to improve student self-efficacy and performance in STEM courses.
- It is important to consider the classroom environment, such as the presence of stereotype threat, when implementing active learning interventions.

References:

(1) S. M. Aguillon, G.-F. Siegmund, R. H. Petipas, A. G. Drake, S. Cotner, and C. J. Ballen. Gender Differences in Student Participation in an Active-Learning Classroom. CBE—Life Sciences Education, 19(2), ar12, 2020. https://doi.org/10.1187/cbe.19-03-0048
(2) C. B. Bruthers and M. L. Matyas. Undergraduates from underrepresented groups gain research skills and career aspirations through summer research fellowship. Advances in Physiology Education, 44(4):525-539, 2020.
(3) K. Cokley, L. Smith, D. Bernard, A. Hurst, S. Jackson, S. Stone, O. Awosogba, C. Saucer, M. Bailey, and D. Roberts. Imposter feelings as a moderator and mediator of the relationship between perceived discrimination and mental health among racial/ethnic minority college students. Journal of Counseling Psychology, 64(2):141-154, 03 2017.

(4) R. Evans, J. Friedman, L. McGrath, P. Myers, and A. Ruiz. Math path: Encouraging female students in mathematics through project-based learning. PRIMUS, 28(4):287-299, 2018.

(5) K. M. Flanagan and J. Einarson. Gender, math confidence, and grit: Relationships with quantitative skills and performance in an undergraduate biology course. CBE - Life Sciences Education, 16(3):1-11, 09 2017.

(6) A. O. Hinton Jr., Z. Vue, C. M. Termini, B. L. Taylor, H. D. Shuler, and M. R. McReynolds. Mentoring minority trainees. EMBO reports, 21(10):e51269, 2020.

(7) L. J. Hirshfield and D. Chachra. Comparing the impact of project experiences across the engineering curriculum. International Journal of Research in Education and Science, 5(2):468-487, 2019.

(8) M. McMullan, R. Jones, and S. Lea. Math anxiety, self-efficacy, and ability in British undergraduate nursing students. Research in nursing & health, 35(2):178-186, 2012.

(9) P. L. Nielson, N. W. B. Bean, and R. A. A. Larson. The impact of a flipped classroom model of learning on a large undergraduate statistics class. Statistics Education Research Journal, 17(1):121-140, 05 2018.

(10) M. Olango. Mathematics anxiety factors as predictors of mathematics self-efficacy and achievement among freshman science and engineering students. African Educational Research Journal, 4(3):109-123, 09 2016.

(11) S. Prabhu. Changing students' perception of learning mathematics. PRIMUS, DOI: 10.1080/10511970.2020.1844826. 2020.

(12) J. A. Raelin, M. B. Bailey, J. Hamann, L. K. Pendleton, R. Reisberg, and D. L. Whitman. The gendered effect of cooperative education, contextual support, and self-efficacy on undergraduate retention. Journal of Engineering Education, 103(4):599-624, 2014.

Session 204: Presentations

204a: Media and Arts as "Partners" in Designing a Financial Literacy Course

Vicki Zhang, University of Toronto

As a teaching professor in insurance and finance and a writer, I have been championing narrative mathematics and theatre-as-pedagogy since 2016. In this new first-year seminar course, I deepened this practice by enlisting various forms of media and arts as de facto partners to actively immerse my students in their journey of exploring financial literacy.

Students in this course are highly diverse in their academic background, and therefore this pedagogical approach serves two immediate purposes:

(1) for students from the humanities, it breaks down the complex financial concepts into less intimidating, relatable human stories that can be further explored;

(2) for students from quantitative fields, it allows them to see the human side of the equation and makes it possible to open the door for financial ethics discussions.

In this ten-session course, every seminar opened with a financial "puzzle" from a media source (e.g. film, TV talk show, stage play). We then spent the rest of the seminar exploring both the quantitative and qualitative aspects of the puzzle through a variety of student-centered, active learning activities. The learning activities include presentations and debates, which treat students as peer-teachers and partners in the course. The course culminated in a close reading of Ayad Akhar's play "Junk" where students were cast as different characters in the play to understand a leveraged buyout story and to explore bigger themes such as the financialization of economy, all through an intimate, immersive experience.

In this session, I will present details of the course activities, the efficacy of using media and arts to motivate and illustrate financial problems, and students' feedback. This is an example of the broader "STEAM" (STEM+Arts) pedagogy that has the potential to be applied to other disciplines. I will encourage session participants to share similar experiences and brainstorm novel ways for cross-pollination between arts and science education.

Takeaways:

As a case study of a course design and teaching practice, this session offers the audience the following takeaways:

- A concrete example of an interdisciplinary approach to designing a financial literacy course, and more broadly, how arts and creative practices can help inject humanities into quantitative fields;
- The importance of creating space for students to become peer teachers and subject experts through mini-research assignments;
- An example of how to serve students with diverse academic background and design courses in such a way that the disciplinary gap can be bridged by using creative practices.

References:

- Fry, A., Wilson, J., & Overby, C. (2013). Teaching the design of narrative visualization for Financial Literacy. Art, Design & Communication in Higher Education, 12(2), 159–177.
- Moore, T. J., & Smith, K. A. (2014). Advancing the State of the Art of STEM Integration. Journal Of STEM Education: Innovations & Research, 15(1), 5.
- Sousa, D.A. & Pilecki, T. (2013). From STEM to STEAM. Thousand Oaks, California: Corwin.

204b: Engaging Undergraduate and Graduate Students as Partners in the Design and Development of a Spanish as a Foreign Language Course

Ana García-Allén, Western University

Dewi Sekar Heru, Western University

Richard Martinez Loyola, Western University

Through the 'Student as Partners' (SaP) framework, this presentation explores how it can enhance undergraduate Spanish as a Foreign Language courses and overall promote student engagement and satisfaction. Traditionally, higher education courses are designed and developed by faculty members, however, our pilot project proposes collaboration between undergraduate and graduate students and course instructors in the design, development, and implementation of course activities. To demonstrate the effectiveness of this model, we will mention the criteria that was used to recruit undergraduate students, which includes individuals with prior knowledge of Spanish that are enrolled in a Spanish Internship course, as well as specific activities conducive to improvements in the understanding of course content. These students have not received formal training in course design, but the internship serves as an opportunity to acquire pedagogical skills.

Additionally, we will explore the effects and outcomes, through four surveys administered at the end of the academic year: one for students in a beginner Spanish course, one for students in an intermediate Spanish course, one for students completing the Spanish Internship and one for graduate teaching assistants and instructors that have employed the SaP model. These surveys will provide quantitative and qualitative data that can aid us in examining how the classroom activities have improved after the introduction of the SaP model. Each is designed to include key factors related to the learning experience: student enjoyment, emotional support, relatedness to peers, feedback from/for students, and content-related support. Collectively, these perspectives are used to discuss and reflect on the feedback provided by students and instructors, which will help us achieve our central objective: the creation of teaching and learning resources that could potentially engage future cohorts and increase student retention. Although this model is presented in the Foreign Language context, it is transferable to any discipline.

Takeaways:

- Increase student engagement.
- Meaningful teamwork between faculty, graduate, and undergraduate students.

204c: Navigating Choices: Examining Students' Experiences with a Guided Choice for a Written Assignment *

Reem Mulla, Health, University of Waterloo

Martin Holmes, Health, University of Waterloo

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

Offering students choices is generally applauded in pedagogy (1,2). Incorporation of choices in learning and assessment activities can increase students' sense of autonomy and ownership over their own learning (3; 4) and lead to more engaging (5), empowering (6) and motivating (7) learning environments, all of which can have positive impacts on student learning (8,9). However, some students may find choices overwhelming (10) due to individual and contextual-level factors and previous experiences. Offering choice in course assessment allows students to be partners in the learning process and make decisions to further their individual interests and career pathways.

In Winter 2020, students enrolled in a course at the University of Waterloo were required to complete a course assignment exposing them to several choices: a choice in assignment type with three potential options; working alone or in pairs; and an opportunity to submit a second assignment to replace a lower mark. This presentation explores how exposure to this set of compounded choices shaped students' learning experiences and engagement with the course using a mixed methods approach. A survey was designed to collect students' (n=85/ 337) self-reported experiences. A subset of survey respondents was recruited for semi-structured interviews to explore their positive and negative experiences with the assignment choices. This presentation will highlight key findings from the quantitative analysis and provide thematic and contextual data from interviews and open-ended survey questions. The engagement component would provide attendees with an opportunity to brainstorm and discuss how they can incorporate choices in their courses. Overall, the goal of the presentation is to provide insight for educators who may wish to include choice in their course design.

Takeaways:

- Summarize the key benefits of offering students choice in working on their course assignments.
- Recognize unique challenges faced by integrating choice into students' learning environment.
- Brainstorm on and identify strategies that can help instructors and students to fully benefit from choices built into courses.

References:

(1) Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good, but relevance is excellent: Autonomy-enhancing and suppressing teacher behaviours predicting students' engagement in schoolwork. The British Journal of Educational Psychology, 72(2), 261-278. doi:https://doi.org/10.1348/000709902158883

(2) Flowerday, T., & Schraw, G. (2000). Teacher beliefs about instructional choice: A phenomenological study. Journal of Educational Psychology, 92(4), 634-645. doi:https://doi.org/10.1037// 0022-0663. 92.4.634

(3) Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). How learning works: Seven research-based principles for smart teaching. San Francisco, CA: Jossey-Bass.

(4) Houser, M. L., & Frymier, A. B. (2009). The Role of Student Characteristics and Teacher Behaviors in Students' Learner Empowerment. Communication Education, 58(1), 35-53. doi:10.1080/03634520802237383

(5) Hardway, C. L., & Stroud, M. (2014). Using Student Choice to Increase Students' Knowledge of Research Methodology, Improve Their Attitudes Toward Research, and Promote Acquisition of Professional Skills. International Journal of Teaching and Learning in Higher Education, 26(3), 381-392.

(6) Jang, H. (2008). Supporting students' motivation, engagement, and learning during an uninteresting activity. Journal of Educational Psychology, 100, 798-811. doi:10.1037/a0012841

(7) Patall, E. A., Cooper, H., & Robinson, J. C. (2008). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. Psychological Bulletin, 134(2), 270-300. doi: https://doi. org/10.1037/0033-2909.134.2.270

(8) Patall, E. A., Cooper, H., & Wynn, S. R. (2010). The effectiveness and relative importance of choice in the classroom. . Journal of Educational Psychology, 102(4), 896-915.

(9) Sinatra, G. M., Heddy, B. C., & Lombardi, D. (2015). The challenges of defining and measuring student engagement in science. . Educational Psychologist, 50(1), 1-13. doi: https://doi.org/10.1080/00461520.2014.1002924

(10) Iyengar, S., & Lepper, M. (2000). When Choice is Demotivating: Can One Desire Too Much of a Good Thing?. Journal of personality and social psychology., 79, 995-1006. doi:10.1037/0022-3514.79.6.995.

Session 205: Panel Discussion - Something There That Wasn't There Before: Establishing Methods, Knowledge and Collaboration Needed for Systematic and Scoping Reviews in Education

Kari Weaver, Library, University of Waterloo

Brie McConnell, Library, University of Waterloo

Alissa Droog, Northern Illinois University

A burgeoning trend in educational research is the emergence of systematic and scoping reviews. Reflecting this growth, in 2020, the [International Database of Education Systematic Reviews](#) was established to widely disseminate such research. These methods, originally developed in the Health Science disciplines, require specific expertise in building searches in disciplinary and relevant interdisciplinary databases, combing through professional and grey literature, and partnership from a team with expertise in both methods and the topical area of exploration.

In this panel, a systematic reviews librarian, education librarian and teaching & learning librarian will discuss systematic and scoping reviews in the field of Education. The panellists will share their varied experiences working on systematic or scoping reviews across disciplines. The panel will then dissect current methods for knowledge synthesis in Health Science, consider the application of these approaches to Education, and address the barriers and limitations of such work. Beyond this, the panellists will address the need for partnership between researchers and librarians as a core piece of the methodology for knowledge synthesis work, and expectations for team composition and timelines. Coverage of publications across education and multidisciplinary databases that must be consulted will also be discussed. People who are interested in knowledge synthesis work, especially those who wish to examine questions related to education, teaching, and learning will benefit from this panel.

Takeaways:

- Participants will be able to differentiate between systematic reviews and other methods of knowledge synthesis.
- Participants will be able to demonstrate an awareness of resources, personnel, team composition, and time commitments for this type of work.
- Participants will be able to identify inherent limitations of knowledge synthesis methods as they apply to Education.

Session 206: Panel Discussion - Enriching Engineering Communication Curriculum through Cross-Disciplinary Partnerships *

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

Sarah Currie, English Language & Literature, University of Waterloo

Andrea Jonahs, English Language & Literature, University of Waterloo

George Lamont, English Language & Literature, University of Waterloo

Heather Love, English Language & Literature, University of Waterloo

Carter Neal, English Language & Literature, University of Waterloo

Dakota Pinheiro, English Language & Literature, University of Waterloo

Since 2018, as part of the University of Waterloo's broader "Undergraduate Communications Outcomes" (UCO) Initiative, faculty in the English and Communication Arts departments (Arts) have been teaching required first-year communication courses to students in the Faculty of Engineering's ECE, Civ/Env, Mgmt, and Arch engineering programs. To enrich the curriculum in these courses, several instructors have established partnerships that bridge disciplinary lines and extend into various industry/professional contexts. This Panel Discussion showcases and reflects on three of these partnerships:

(1) A collaboration between English and Civil Engineering faculty members designed to build students' science identity through social impact and mentorship interventions, which took place in two concurrent courses (one on professional communication and the other on mechanics) and is supported by a CTE LITE Seed Grant titled "'We All Belong Here': Building science identity among first-year engineering students";

(2) A game-based approach to teaching Process Analysis Communication to Management and Architectural Eng. students developed by an English faculty member in collaboration with a group of student research/teaching assistants, and in consultation with Engineering faculty;

(3) An ECE course co-designed by English faculty and run with TA support, which focused on the ethical implications of AI and capitalized on the professionalization and networking opportunities of an international engineering conference (IEEE ISTAS21) that students attended as part of their assigned activities.

Each group of presenters will provide a 10-minute overview of their partnership including (a) its motivations and objectives, (b) a rationale for the pedagogical activities that it has inspired, and (c) the results of its implementation—particularly as they pertain to student engagement and learning outcomes. The group will then engage in a moderated discussion focused on what they see as the future possibilities, challenges, and value of these types of initiatives.

Takeaways:

- Required communication courses can offer valuable sites for developing students' early awareness of the broader professional issues, values, and practices that define technical fields of study.
- Instructors who run courses that students perceive as less important/valuable to their overall professional development can increase student buy-in by engaging in cross-disciplinary teaching partnerships.

- A significant amount of work is required to establish these types of collaborative partnerships and to effectively implement the pedagogical activities that emerge; however, those efforts are rewarding for both students and instructors, and they merit additional institutional resources and encouragement.

References:

Below is a selection of references that inform the projects described above.

On science identity and issues of race/gender:

- Carlone, H. B., & A. Johnson. "Understanding the science experiences of successful women of color: Science identity as an analytic lens." Journal of Research in Science Teaching, vol. 44, no. 8, pp. 1187–1218, 2007. https://doi.org/10.1002/tea.20237

On engineering students expressing frustration with technical communication:

- Pierson, Marcia Marten and Bion L. Pierson, "Beginnings and endings: Keys to better engineering technical writing," IEEE Transactions on Professional Communication, vol. 40, no. 4, pp. 299-304, January 1998.

On engineers positing communication as essential for success:

- Coulter, Beverly, Roslyn Petelin, Justine Gannon, Kate O'Brien, and Corrie Macdonald. "Enhancing technical writing skills for undergraduate students." Australian Association for Engineering Education Conf., AAEE2017, Nazmul Huda, David Inglis, Nicholas Tse and Graham Town (ed.) (Sydney, AU; 10-13December 2017), 9 pp., 2017.
- Heylen, C. and J. Van der Sloten. "A technical writing program implemented in a first year engineering design course at Ku Leuven." European Society for Engineering Education, SEFI2012, (Thessaloniki, EL; 23-26September 2012), 2 pp., 2012.

On gaps between academic preparation and practical communication in workplaces:

- Reave, Laura. "Technical communication instruction in engineering schools: A survey of top-ranked U.S. and Canadian programs." Journal of Business and Technical Communication, vol. 18, no. 4, pp. 452-490, October 2004.

On interdisciplinary approaches to teaching communication to engineering students:

- Maureen A. Mathison, editor. Sojourning in Disciplinary Cultures: A Case Study of Teaching Writing in Engineering. Utah State University Press, 2019.

Session 207: Workshop - Promoting Pedagogical Partnerships

Loretta Howard, OISE/University of Toronto

Jay Han, OISE/University of Toronto

Rebekah Rotert, OISE/University of Toronto

Behling and Linder (2017) highlighted significant barriers to collaborative efforts within educational institutions, not only in the classroom, but also between departments and at administrative levels. More recently Baumber, Kligyte, van der Bijl-Brouwer and Pratt (2020) indicated that "partnership in higher education has gained prominence over recent decades" (p. 395). Since then, current experiences within education, especially considering the COVID19 pandemic, challenged our ability to connect and co-construct pedagogically. Our abilities as educators and learners were both strained and enhanced to engage in teaching-learning partnerships and promote transformative learning - learning that "empower(s) students to become effective members of society, challenging students' (and staff) assumptions and changing their views of the world" (Bovill & Woolmer, 2019, p. 412). Today, if learners and educators are to adapt to and influence a new world of teaching and learning, it is crucial to invest in pedagogical partnerships reflecting reciprocity, respect, and a mutual sharing of responsibility in shaping the processes of knowledge transfer (Cook-Sather, Bovill, & Felton, 2014; Bovill & Woolmer, 2019). In this workshop, framed within its own pedagogical partnership, we bring our lived experiences to the table to explore the barriers and opportunities embedded in these kinds of partnerships.

Takeaways:

Utilizing collaborative dialogue and an experiential process, participants in this workshop will:

- Explore dynamics that promote or discourage authentic partnership.

- Discuss best practices for facilitating partnership.

- Articulate how these partnerships can be fostered in academic and non-academic settings.

- Co-create a practical "tool kit" for fostering healthy and transformative pedagogical partnerships relevant to both learners and educators in which the new realities of our society, institutions, and workplaces are aptly addressed.

References:

- Baumber, A., Kligyte, G., van der Bijl-Brouwer, M., & Pratt, S. (2020). Learning together: a transdisciplinary approach to student–staff partnerships in higher education. Higher Education Research & Development, 39(3), 395-410.
- Behling, K., & Linder, K. E. (2017). Collaborations between centers for teaching and learning and offices of disability services: Current partnerships and perceived challenges. Journal of Postsecondary Education and Disability, 30(1), 5-15.
- Bovill, C., & Woolmer, C. (2019). How conceptualisations of curriculum in higher education influence student-staff co-creation in and of the curriculum. Higher Education, 78(3), 407-422.
- Brasley, S. S. (2008). Effective librarian and discipline faculty collaboration models for integrating information literacy into the fabric of an academic institution. New Directions for Teaching and Learning, 2008(114), 71-88.
- Cook-Sather, A., Bahti, M., & Ntem, A. (2019). Pedagogical partnerships: A how-to guide for faculty, students, and academic developers in higher education. Elon University Center for Engaged Teaching Open Access Series.
- de Bie, A., Marquis, E., Cook-Sather, A., & Luqueño, L. P. (2021). Promoting equity and justice through pedagogical partnership. Sterling, Virginia: Stylus Publishers. https://www.centerforengagedlearning.org/books/promoting-equity-and-justice-through-pedagogical-partnership/

- Mckay, T. M., & Simpson, Z. (2013). The space between: Pedagogic collaboration between a writing centre and an academic department. Perspectives in Education, 31(4), 27-42.
- Woolmer, C. (2018). Exploring dimensions of risk in pedagogical partnerships in higher education. Teaching and Learning Together in Higher Education, 1(24), 1.

Concurrent Sessions (300): Wednesday, April 27 (3:15pm – 4:15pm ET)

Session 301: Presentations

301a: Assessing Impacts of Waterloo's Undergraduate Mental Health Literacy Course *

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

Christine Zaza, Centre for Extended Learning, University of Waterloo

Gitanjali Shanbhag, Organizational and Human Development, University of Waterloo

Ryan Yeung, Psychology, University of Waterloo

Concerns about post-secondary students' mental health and well-being, as well as their generally low levels of mental health literacy, were well-documented before the COVID-19 pandemic (Clough et al., 2019; Gorczynski et al., 2020; Hernández-Torrano et al., 2020). To address these concerns, in the Winter term of 2020, the Faculty of Health launched the University of Waterloo's first undergraduate Mental Health Literacy course for students in all Faculties. Due to high uptake from students across campus, multiple sections of this Mental Health Literacy course have been offered every term since 2021. With support from a University of Waterloo Learning Innovation and Teaching Enhancement (LITE) SEED grant, we conducted three studies that build on early research conducted by two of the presenters (Zaza & Yeung, in press).

Study 1: In each term of 2021, we conducted a pre-post study to examine indicators of students' mental health literacy (e.g., attitudes toward help-seeking, stigma and self-stigma). A total of 161 students participated across the pre-post studies, and within-subjects analysis was possible with 51 participants.

Study 2: One month after the end of the Fall 2021 term, we conducted a follow-up study to assess whether students were continuing to use wellness behaviours learned and practiced during the course. To date, 18 students have participated in the follow-up study.

Study 3: In the Winter and Spring terms of 2021, we conducted a content analysis of students' final assignments to examine qualitative outcomes of having taken the course. In these assignments, students were asked to reflect on their key take-aways from the course as well as their achievement of the course-level learning outcomes. A total of 32 students participated in the third study.

Our findings have contributed to revisions of the mental health literacy course. In this presentation, we will describe our findings from these studies.

Takeaways:

- The findings from our three research projects demonstrate the need for mental health literacy education in the curriculum.
- Our evaluation of the novel final reflection assignment provided meaningful findings that were not captured by our Pre-Post study.
- Our evaluation of the novel final reflection assignment supports the use of this type of assessment in other courses.

References:

- Clough, B. A., Nazareth, S. M., Day, J. J., & Casey, L. M. (2019). A comparison of mental health literacy, attitudes, and help-seeking intentions among domestic and international tertiary students. British Journal of Guidance and Counselling, 47(1), 123–135. https://doi.org/10.1080/03069885.2018.1459473

- Gorczynski, P., Sims-Schouten, W., & Wilson, C. (2020). Evaluating mental health literacy and help-seeking behaviours in UK university students: A country wide study. Journal of Public Mental Health, 19(4), 311–319. https://doi.org/10.1108/JPMH-10-2019-0086
- Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. Frontiers in Psychology, 11, 1–16. https://doi.org/10.3389/fpsyg.2020.01226
- Zaza, C. & Yeung, R.C. (in press). It's Time to Bring Mental Health Literacy Education into the Postsecondary Curriculum. *Canadian Journal for the Scholarship of Teaching and Learning*.

301b: The Last Class Workshop – A Tool for Course Evaluation and Evolution

Erin Styles, University of Toronto

Elizabeth Polvi, University of Calgary

Recognizing that the last session of class at the end of the term is often not very materially productive, I have searched for a way to make this last class meaningful and functional. In this presentation, I will describe my implementation of and research surrounding a workshop oriented towards obtaining real-time course evaluations and driving course evolution (1). This approach generates honest and actionable feedback and can be used in the context of many types of courses and across any discipline. This presentation will describe models of the "Last Class Workshop" for both in-person learning and synchronous online learning alongside data speaking to its success, as well as suggest straightforward adaptations for asynchronous online learning environments.

During this session I will focus on describing the preparative work done by both students and instructors, as well as the practical elements surrounding how to effectively deliver the workshop. The success of the "Last Class Workshop" depends on the openness of the facilitator to accepting feedback of all types, and on the active engagement and deliberate metacognitive reflection of students (2,3), and much of the preparation before the session is oriented towards appropriately framing it for success in these areas. It is presented as an opportunity for student activism during which students are asked to contribute to improving future iterations of the course and has three fundamental rationales: 1) Student contribution as both assessors and creators in this partnership, 2) Course evolution, and 3) Course evaluation.

Fundamentally, the "Last Class Workshop" is built on the idea that the students themselves are the best source of constructive critique, innovative adaptations, and updates in a course. It is not difficult to implement, has a meaningful impact for participants, and can provide transformative feedback.

Takeaways:

- The "Last Class Workshop" is an engaging, dynamic session that's situated in the last contact session of a course, to solicit real-time feedback from students pertaining to any / all aspects of the course. It's not content specific, can be offered in the context of many types of courses and across any discipline, and is very amenable to a synchronous in-person or virtual learning environment. It can also be readily adapted to an asynchronous learning environment.
- The premise behind the "Last Class Workshop" is that students are the best source of ideas when it comes to evaluating, updating, and refreshing a course. It creates a safe forum to first solicit anonymous student feedback, and then to provide an opportunity for students to both anonymously and non-anonymously brainstorm and build on each other's suggestions of what a course could be in the future.

References:

- Bleicher, E. (2011). The Last Class: Critical Thinking, Reflection, Course Effectiveness, and Student Engagement, Honors in Practice – Online Archive, 130, 1–15.
- Bovill, C., Cook-Sather, A., & Felten, P. (2011) Students as co-creators of teaching approaches, course design, and curricula: implications for academic developers, International Journal for Academic Development, 16:2, 133-145.
- Pintrich, P.R. (2002). The Role of Metacognitive Knowledge in Learning, Teaching, and Assessing, Theory into Practice, 41:4, 219-225.

301c: Assessing a Modified Version of the Motivated Strategies for Learning Questionnaire as a Student Development Tool *

Jhotisha Mugon, University of Victoria

Erin Jobidon, Student Success Office, University of Waterloo

Gracia Dong, Statistics & Actuarial Science, University of Waterloo

Jenna Hampshire, Student Success Office, University of Waterloo

The Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, 1991) measures the types of learning strategies and academic motivations of university students. Previous studies have highlighted the benefits of adapting and incorporating the MSLQ within specific learning environments (Al Khatib, 2010; Credé & Phillips, 2011; Jackson, 2018; vanRooij, Jansen, & van de Grift, 2018). For example, vanRooij and colleagues (2018) demonstrated that students who scored higher on the motivation subscales and the learning strategies subscales of the MSLQ were more likely to report strong academic adjustment within their first year of university.

In our context, the scale has been administered as a student facing tool to foster self-awareness and self-regulation during the transition to university learning. The MSLQ was first implemented in Fall 2018 in Arts First courses and has since been adopted by the Faculties of Health, Environment and Science and the School of Accounting and Finance. Exploratory and confirmatory factor analyses were used to adapt and contextualize the scale for the Faculty of Arts (Arts First) and Faculty of Health. Additionally, correlational analyses have demonstrated a positive relationship between most of the adapted subscales and final course grades such that high scores on the subscales are associated with higher grades in the respective course.

In Fall 2021, focus groups were run with first-year Health students who completed the survey earlier in the term. The purpose was two-fold: understand how students interpret the adapted survey items and subscales (i.e., assessing face validity) and further explore the tool's potential impact on the academic transition to university. Preliminary findings regarding the perceived value of the MSLQ as a self-regulation tool, improvements to the survey based on face validity analysis, use of the survey to build supporting relationships with students and next steps for the modified version of the MSLQ will be discussed. Based on our results, the next cohort of students will get a refined survey with improved resources.

Takeaways:

- The process of building a modified version of the motivated strategies for Learning Questionnaire led to the development of a tool to support students and build relationship with different units on campus as they (students) transition into university.
- Results of the focus group highlighted the need and benefit for first year instructors to engage with the adaptation process to get their students better set up for a successful transition.
- When incorporated within first year courses, students developed a greater awareness of various support systems available to them on campus.

References:

- Al Khatib, S. A. (2010). Meta-cognitive self-regulated learning and motivational beliefs as predictors of college students' performance. International journal for research in Education, 27(8), 57-71.
- Credé, M., & Phillips, L. A. (2011). A meta-analytic review of the Motivated Strategies for Learning Questionnaire. Learning and individual differences, 21(4), 337-346.

- Jackson, C. R. (2018). Validating and adapting the motivated strategies for learning questionnaire (MSLQ) for STEM courses at an HBCU. Aera Open, 4(4), 2332858418809346.
- Pintrich, P. R. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ).
- Van Rooij, E. C., Jansen, E. P., & van de Grift, W. J. (2018). First-year university students' academic success: the importance of academic adjustment. European Journal of Psychology of Education, 33(4), 749-767.

Session 302: Presentations

302a: Instructor/Teaching Assistant Partnerships for Course Redesign: Leveraging a Certificate in University Teaching

Jennifer Ellingham, Mechanical & Mechatronics Engineering, University of Waterloo

Elizabeth Weckman, Mechanical & Mechatronics Engineering, University of Waterloo

Partnerships between an instructor and a teaching assistant (TA) who is completing a Certificate in University Teaching (CUT) program can greatly aid in efficient, creative, up-to-date, and effective course redesign. In the presentation, the TA will demonstrate, with examples and results, how a symbiotic partnership between a seasoned instructor and TA can be used for successful course redesign. Feedback from all parties indicates the redesign was successful.

In Fall 2021 term, the University of Waterloo adopted a hybrid approach to classes wherein students could attend lectures both in-person and online. This approach demanded changes in a mandatory second year Mechanical Engineering course and was seen as a great opportunity to redesign portions of the course using newer pedagogical practices. When completing CUT workshops on *How Students Learn*, *Active Learning Strategies*, *Assessment Strategies* and *Principles of Course Design*, the TA drew from their experience with the course in Fall 2020. For the workshop readings and activities (key, thought-provoking references provided), the TA developed new ideas to modify some existing elements of the course (e.g., learning outcomes, teaching practices, course assessments). Together the teaching team analyzed and refined the idealized, workshop-generated ideas and implemented a selection of them into the F2021 offering. The instructor provided the TA a rare and valuable opportunity to i) directly apply their pedagogical learnings, ii) learn from rich experience with course teaching, and iii) improve their teaching portfolio. The TA was able to assist the instructor by i) bringing a new perspective to course design based on recent experience and student interactions, ii) providing resources and active knowledge of current pedagogy, and iii) having a stake in course design, which fostered investment and willingness to assist above-and-beyond the typical TA duties. Students i) benefited from pedagogically updated portions of their course, and ii) indicated that the changes made were appreciated.

Takeaways:

Partnerships between an instructor and a teaching assistant (TA) who is completing the Certificate in University Teaching (CUT) program can result in efficient, creative, up-to-date, and effective course redesign.

- The TA can assist the instructor by i) bringing a new perspective to the course design, ii) providing necessary resources to gain and apply knowledge of current pedagogy, and iii) having a stake in course redesign fostering investment and a willingness to assist above-and-beyond the typical TA duties.
- The instructor provides the TA a rare and valuable opportunity to i) apply their pedagogical learnings, ii) learn from rich teaching experience, and iii) improve their teaching portfolio.
- Students benefit from pedagogically updated courses.

References:

- Centre for Teaching Excellence. (n.d.). Certificate in University Teaching. Retrieved from https://uwaterloo.ca/centre-for-teaching-excellence/support-graduate-students/certificate-university-teaching
- Centre for Teaching Excellence. (n.d.). Teaching Tips. Retrieved from https://uwaterloo.ca/centre-for-teaching-excellence/resources/teaching-tips
- Freeman, S. et al. (2014). Active learning increases student performance in science, engineering, and mathematics. PNAS, 111, 8410-8415. https://www.pnas.org/content/111/23/8410

- Queen's University. (2015). Principles of Course Design. Online Module. Teaching and Learning in Higher Education. Retrieved from https://www.queensu.ca/teachingandlearning/modules/principles/index.html
- Svinicki, M.D. (2005). Student Goal Orientation, Motivation, and Learning. Center for Enhancement of Learning and Teaching: Idea Papers, 41. https://www.ideaedu.org/Portals/0/Uploads/Documents/IDEA%20Papers/IDEA%20Papers/Idea_Paper_41.pdf
- Svinicki, M. D. (2004). Authentic Assessment: Testing in Reality. New Directions for Teaching and Learning. 100: 23-29
- University of Waterloo. (2015). Assessment Strategies. Online Module. Teaching and Learning in Higher Education. Retrieved from https://www.queensu.ca/teachingandlearning/modules/assessments/index.html
- University of Waterloo. (2015). How Students Learn. Online Module. Teaching and Learning in Higher Education. Retrieved from https://www.queensu.ca/teachingandlearning/modules/students/index.html
- Western University. (2015). Active Learning. Online Module. Teaching and Learning in Higher Education. Retrieved from https://www.queensu.ca/teachingandlearning/modules/active/index.html

302b: Pandemic Based Pedagogical Development for Early Career Instructors and Teaching Assistants

Ibrahim Berrada, Brock University

Natalie Currie-Patterson, Brock University

The onset of the pandemic prompted our University's Centre for Teaching and Learning (CTL) to recognize the need to develop programming supporting teaching and learning with a particular focus on online pedagogy for teaching assistants (TA). This presentation explores a recent Instructional Support Assistance (ISA) program which focused on providing disciplinary-specific pedagogical support for TAs. Recognizing the important role TAs play in learning partnerships in post-secondary institutions, the ISA program emphasized perspectives on pandemic era pedagogical programming. Pedagogical support structures are not universal, and programming produced by CTLs offer support for developing pedagogical techniques in the online classroom. ISAs were employed by the CTL and provided the necessary tools to research, plan, design, and conduct synchronous and asynchronous workshops for incoming and experienced TAs focusing on humanizing the online teaching and learning experience.

This discussion will highlight some of the better practices learned and the research tapped to develop this program. The presenter expands on the ISA program developed by the CTL, emphasizing the role of humanizing online teaching. This discussion also highlights the presenter's experience as an Early Career Instructor (ECI) and TA at an American University and Canadian University and the comparative support structures at both institutions. Supportive relationships are paramount as research demonstrates that ECIs and professional TAs are interested in a broader range of professional development opportunities geared towards improving career prospects and professional aspirations. The presenter offers reflections as a graduate student holding multiple roles, as an ECI, TA and ISA across various institutions and the deeply significant relationships promoted by CTLs.

Takeaways:

- The merit of context-specific instructional development or professional learning opportunities.
- Recognizing the important role of Teaching Assistants in teaching and learning.
- The value of professional development.

References:

- Bishop-Williams, K. E., Roke, K., Aspenlieder, E., & Troop, M. (2017). Graduate Student Perspectives of Interdisciplinary and Disciplinary Programming for Teaching Development. The Canadian Journal for the Scholarship of Teaching and Learning, 8 (3). https://doi.org/10.5206/cjsotl-rcacea.2017.3.11
- Gallardo-Williams, M. T., & Petrovich, L. M. (2017). An integrated approach to training graduate teaching assistants. Journal of College Science Teaching, 47(1). https://doi.org/10.2505/4/jcst17_047_01_43
- Pacansky-Brock, M., Smedshammer, M., & Vincent-Layton, K. (2020). Humanizing Online Teaching to Equitize Higher Education. Current Issues in Education, 21(2).
- Rolheiser, C., Seifert, T., McCloy, C., Gravestock, P., Stewart, G., Greenleaf, E., Burnett, M., Carpenter, S., Pottruff, B., & McKean, S. (2013). Developing Teaching Assistants as Members of the University Teaching Team. Toronto: Higher Education Quality Council of Ontario.
- Teasdale, R., Ryker, K., & Bitting, K. (2019). Training graduate teaching assistants in the geosciences: Our practices vs. perceived needs, Journal of Geoscience Education, 67 (1), 64-82. https://doi.org/10.1080/10899995.2018.1542476
- Wyse, S., Long, T., & Ebert-May, D. (2014). Teaching Assistant Professional Development in Biology: Designed for and Driven by Multidimensional Data. CBE Life Sciences Education, 13(2), 212–223. https://doi.org/10.1187/cbe.13-06-0106

302c: Peer Assessment: Allowing Students to Partner with Instructors to Teach their Peers

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Rishit Daru, Electrical and Computer Engineering, University of Waterloo

Juan Carlos Segovia Garza, Electrical and Computer Engineering, University of Waterloo

David Wang, Electrical and Computer Engineering, University of Waterloo

Many post-secondary institutions face financial constraints, and instructors are faced with large classes with few Teaching Assistant resources. Prompt feedback to students for academic submissions is difficult.

Peer assessment, where students partner with instructors to teach their peers, can help with this issue. There is much research that indicates peer assessment is beneficial as it requires students to access higher levels of Bloom's Taxonomy [1,2,3]. In essence, by evaluating and teaching their peers on how to improve their academic submissions, students are moving from the lower stages of learning (remember, understand, apply) to the higher stages of learning (analyze, evaluate). When peer assessment requires a written assessment, communication skills also are a learning outcome. Proper peer assessment encourages communication in a constructive manner between peers. This process facilitates creating student-student partnerships that allow them to understand the material through their peers' interpretations, to improve their critical thinking and evaluation skills, and to take greater ownership of their learning.

In the presentation, the results of implementing peer assessment across a number of courses and universities were studied. The peer assessment platform used is Kritik. Once students' work is submitted, it is peer marked, where assessors are required to make written justifications for all the marks given. Students are then given the opportunity to provide feedback on the evaluations they receive. The feedback stage allows assessors to know how critical and motivational their comments are. It also enforces students to re-engage in the content, improving their overall knowledge retention. The entire peer-assessment process is conducted anonymously, ensuring unbiased responses from students. A systematic statistical analysis is shown in the presentation validates the benefits of peer assessment, including increased quality and effectiveness of learning. The metrics studied include student academic performance, as well as surveys regarding their perceptions of their learning and engagement.

Takeaways:

- Peer assessment can be useful in providing more detailed student assessment in a prompt manner.
- Students appreciate the fairness of peer assessment and are overwhelmingly positive about assessing their peers.
- There is a reduced workload for the instructors.

References:

- Krathwohl, David R. (2002). "A revision of Bloom's taxonomy: An overview." Theory Into Practice, 41(4), 212-218.
- Li, Hongli, Yao Xiong, Xiaojiao Zang., Mindy L. Kornhaber, Youngsun Lyu, Kyung Sun Chung, and Koi H. Suen. (2016). "Peer assessment in the digital age: A meta-analysis comparing peer and teacher ratings." Assessment & Evaluation in Higher Education, 41(2), 245-264.
- Van Zundert, Marjo, Dominique Sluijsmans, and Jeroen Van Merriënboer. (2010). "Effective peer assessment processes: Research findings and future directions." Learning and Instruction, 20(4), 270-279.

Session 303: Presentations

303a: Students as Partners in Research in Thesis and Non-Thesis Programs

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Nicole Campbell, Western University

Through different degree requirements, both thesis and non-thesis programs have the potential for effective student partnerships in research. Thesis programs involve the completion of an independent research project under the supervision of a faculty member, whereas non-thesis research can take a variety of formats such as literature review courses, lab-based research courses, or inquiry-based assessments (Auchincloss et al. 2014; Ontario Council on Graduate Studies 2017; Vajoczki 2010; Wuetherick 2020). To compare research experiences and skill development in these program types at the undergraduate and master's levels, the authors completed a literature search and environmental scan. Across the literature, the specific research skills reported in both program types were similar, with the differences being the teaching and assessment methods used to achieve development of these skills (e.g., Willison 2012). To further explore research experiences, skill development, and motivations for study in thesis and non-thesis programs, a case study involving thesis undergraduate, thesis master's, and non-thesis master's students was conducted at the Schulich School of Medicine & Dentistry.

The results from this case study revealed differences between the three program types regarding students' motivations for study, goals, and career aspirations. Non-thesis master's students reported the highest perceived skill competencies across the greatest number of research skills, despite thesis master's students reporting more frequent research opportunities. Taken together, these findings suggest that through their own unique methods, both thesis and non-thesis programs have the potential for effective student partnerships in research. Furthermore, collecting information on students' goals, expectations, and skill competencies can foster opportunities for student partnerships in course development and curriculum design. Upon attending this presentation, participants will gain insight into the benefits of student partnerships in research in both thesis and non-thesis programs, as well as the potential contributions that students can make towards the design of future research experiences.

Takeaways:

- The findings from this study suggest that through different degree requirements, teaching and learning methods, and assessments, student partnerships in research can be effectively implemented in both thesis and non-thesis undergraduate and master's programs.
- An understanding of students' needs, goals, and past educational experiences can present opportunities for partnerships in course development and curriculum design.

References:

- Anderson, Steven G. 2003. "Engaging Students in Community-Based Research: A Model for Teaching Social Work Research." *Journal of Community Practice* 10 (2): 71–87. https://doi.org/10.1300/J125v10n02_05.
- Auchincloss, Lisa Corwin, Sandra L. Laursen, Janet L. Branchaw, Kevin Eagan, Mark Graham, David I. Hanauer, Gwendolyn Lawrie, et al. 2014. "Assessment of Course-Based Undergraduate Research Experiences: A Meeting Report." *CBE Life Sciences Education* 13 (1): 29–40. https://doi.org/10.1187/cbe.14-01-0004.
- Bandaranaike, Suniti. 2018. "From Research Skill Development to Work Skill Development." *Journal of University Teaching & Learning Practice* 15 (4): 108–26. https://doi.org/10.53761/1.15.4.7.

- Bauer, Karen W, and Joan S Bennett. 2003. "Alumni Perceptions Used to Assess Undergraduate Research Experience." *The Journal of Higher Education* 74 (2): 210–30. https://doi.org/10.1080/00221546.2003.11777197.
- Boyer Commission. 1998. *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. New York: Stony Brook Press.
- Bussell, Hilary, Jessica Hagman, and Chirstopher S. Guder. 2017. "Research Needs and Learning Format Preferences of Graduate Students at a Large Public University: An Exploratory Study." *College & Research Libraries* 78 (7): 978–98. https://doi.org/10.5860/crl.78.7.978.
- Canadian Association for Graduate Studies. 2012. "Graduate Studies: A Practical Guide." https://secureservercdn.net/45.40.150.136/bba.0c2.myftpupload.com/documents/publications/best_practices/Graduate_Studies_A_Practical_Guide_FINAL_15OCT12.Eng.pdf.
- Crebert, Gay, Merrelyn Bates, Barry Bell, Carol-Joy Patrick, and Vanda Cragnolini. 2004. "Developing Generic Skills at University, during Work Placement and in Employment: Graduates' Perceptions." *Higher Education Research & Development* 23 (2): 147–65. https://doi.org/10.1080/0729436042000206636.
- Feldon, David F., Michelle A. Maher, Melissa Hurst, and Briana Timmerman. 2014. "Faculty Mentors', Graduate Students', and Performance-Based Assessments of Students' Research Skill Development." *American Educational Research Journal* 52 (2): 334–70. https://doi.org/10.3102/0002831214549449.
- Feldon, David F., James Peugh, Briana E. Timmerman, Michelle A. Maher, Melissa Hurst, Denise Strickland, Joanna A. Gilmore, Cindy Stiegetmeyer. 2011. "Graduate Students' Teaching Experiences Improve their Methodological Research Skills." *Science (American Association for the Advancement of Science)* 333 (6045): 1037–1039. https://doi.org/10.1126/science.1204109.
- Gilmore, Joanna, Michelle Vieyra, Briana Timmerman, David Feldon, and Michelle Maher. 2015. "The Relationship between Undergraduate Research Participation and Subsequent Research Performance of Early Career STEM Graduate Students." *The Journal of Higher Education* 86 (6): 834–63. https://doi.org/10.1353/jhe.2015.0031.
- González, C. 2001. "Undergraduate research, graduate mentoring, and the university's mission." *Science*, 293(5535), 1624–1626. https://doi.org/10.1126/science.1062714.
- Hart, Joanne. 2019. "Interdisciplinary Project-Based Learning as a Means of Developing Employability Skills in Undergraduate Science Degree Programs." *Journal of Teaching and Learning for Graduate Employability* 10 (2): 50--66. https://doi.org/10.21153/jtlge2019vol10no2art827.
- Healey, Mick, and Alan Jenkins. 2009. "Developing Undergraduate Research and Inquiry." *The Higher Education Academy*.
- Hunter, Anne-Barrie, Sandra L. Laursen, and Elaine Seymour. 2007. "Becoming a Scientist: The Role of Undergraduate Research in Students' Cognitive, Personal, and Professional Development." *Science Education* 91 (1): 36–74. https://doi.org/10.1002/sce.20173.
- Kardash, CarolAnne M. 2000. "Evaluation of an Undergraduate Research Experience: Perceptions of Undergraduate Interns and Their Faculty Mentors." *Journal of Educational Psychology* 92 (1): 191–201. https://doi.org/10.1037/0022-0663.92.1.191.
- Laidlaw, Anita, Jim Aiton, Julie Struthers, and Simon Guild. 2012. "Developing Research Skills in Medical Students: AMEE Guide No. 69." *Medical Teacher* 34 (9): 754–71. https://doi.org/10.3109/0142159x.2012.704438.
- Lopatto, David. 2003. "The Essential Features of Undergraduate Research." *CUR Quarterly* 24: 139–42. https://www.researchgate.net/publication/247868423_The_Essential_Features_of_Undergraduate_Research
- Moni, Roger W., Deanne H. Hryciw, Philip Poronnik, and Karen B. Moni. 2007. "Using Explicit Teaching to Improve How Bioscience Students Write to the Lay Public." *Advances in Physiology Education* 31 (2): 167–75. https://doi.org/10.1152/advan.00111.2006.

- Ontario Council on Graduate Studies. 2017. "Principles for Graduate Study at Ontario's Universities." Council of Ontario Universities. https://cou.ca/reports/graduate-study-principles/.
- Sabatini, David A. 1997. "Teaching and Research Synergism: The Undergraduate Research Experience." *Journal of Professional Issues in Engineering Education and Practice* 123 (3): 98–102. https://doi.org/10.1061/(ASCE)1052-3928(1997)123:3(98).
- Shostak, Sara, Jennifer Girouard, David Cunningham, and Wendy Cadge. 2010. "Teaching Graduate and Undergraduate Research Methods: A Multipronged Departmental Initiative on JSTOR." *American Sociological Association* 38: 93–105. https://doi.org/10.1177/0092055x10364009.
- Timmerman, Briana Crotwell, David Feldon, Michelle Maher, Denise Strickland, and Joanna Gilmore. 2013. "Performance-Based Assessment of Graduate Student Research Skills: Timing, Trajectory, and Potential Thresholds." *Studies in Higher Education* 38 (5): 693–710. https://doi.org/10.1080/03075079.2011.590971.
- Vajoczki, Susan. 2010. "From the International Desk: A Canadian Perspective on Undergraduate Research." *Council on Undergraduate Research Quarterly* 31 (2). https://link.gale.com/apps/doc/A247530440/AONE?u=lond95336&sid=bookmark-AONE&xid=f681de59.
- Wagner, Helene H., Melanie A. Murphy, Rolf Holderegger, and Lisette Waits. 2012. "Developing an Interdisciplinary, Distributed Graduate Course for Twenty-First Century Scientists." *BioScience* 62 (2): 182--188. https://doi.org/10.1525/bio.2012.62.2.11.
- Willison, John. 2012. "When Academics Integrate Research Skill Development in the Curriculum." *Higher Education Research & Development* 31 (6): 905–19. https://doi.org/10.1080/07294360.2012.658760.
- Wuetherick, Brad. 2020. "Transforming Undergraduate Research at Canadian Universities." In *International Perspectives on Undergraduate Research*, by N. H. Hensel and P. Blessinger, 265–80. https://doi.org/10.1007/978-3-030-53559-9_15.

303b: Closing the Feedback Loop in Undergraduate Medical Sciences Education through Student-Faculty Partnerships

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Anita Woods, Western University

Sarah McLean, Western University

As higher education institutions transitioned to fully online teaching and learning environments due to the Covid-19 pandemic, the importance of effective pedagogical models was reinforced. This abrupt change of curriculum delivery from previously well-established educational programs has not been without challenges, and subsequently identified a need for improvements in online teaching and learning practices. In September of 2020, a group of dental students and motivated faculty at our institution came together in response to the pandemic and established an online feedback model. This feedback model created the foundation for a Students as Partners program (SaP). SaP programs provide students and faculty the opportunity to foster academic partnerships and together be part of the teaching and learning process (Cook-Sather et al., 2014). This program allowed dentistry students to provide real-time feedback on curricular content and delivery as teaching and learning shifted online. To evaluate the impact a real-time feedback model has in enhancing teaching and learning, it is crucial to determine if the feedback loop is closed. Closing the feedback loop is a systematic process where student feedback is shared with students and faculty, timely actions are taken to implement changes from the student voice, and the effectiveness of actioned improvements is monitored (Shah et al., 2017).

After collecting pilot data from students and faculty on their perspectives of the feedback system, we implemented changes to our model of Students as Partners. An updated feedback system was redeveloped, focusing on streamlining the process for delivering and receiving feedback, ultimately improving on the closure of the feedback loop. This has resulted in an enhancement of teaching and learning in undergraduate medical science education.

Our presentation will demonstrate the design of our feedback system, while sharing our results of its impact on the student-faculty teaching and learning experience.

Takeaways:

- Our session is intended to assist educators in higher education with a feedback model that elicits student voices while enhancing the teaching and learning experience.
- Additionally, our session will share how we established, designed and implemented our feedback system, and the perceived effectiveness of our feedback system from students' and faculty involved.

References:

- Cook-Sather, A., Bovill, C., & Felten, P. (2014). Engaging students as partners in learning and teaching: a guide for faculty (First edition.). Jossey-Bass.
- Shah, M., Cheng, M., & Fitzgerald, R. (2017). Closing the loop on student feedback: the case of Australian and Scottish universities. Higher Education, 74, 115-129.

303c: Building Capacity to Teach Collaborative Skills at Waterloo: LITE Grant Learnings *

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

Scott Anderson, Instructional Technologies and Media Services, University of Waterloo

Katie Plaisance, Knowledge Integration, University of Waterloo

Collaborative skills are becoming increasingly important across several disciplines and employment sectors. Many of the problems we face as a society – such as climate change, global poverty, and racial inequities – require people from diverse backgrounds to work together effectively. Even workplaces that deal with more straightforward challenges are using collaborative approaches, which have been shown to enhance productivity (Gaskell 2017). It is perhaps unsurprising, then, that the ability to work well in a team was rated as the #1 skill in a recent survey of employers (NACE 2021), and is considered a key "21st century skill" that students should learn (Bialik & Fadel 2015; Rockwood 2021). However, studies also indicate that graduates often lack the collaborative skills necessary to succeed in the workplace (AMA 2012; Harder et al. 2014; Mashek 2021).

This LITE Grant supported project was aimed to build capacity for UWaterloo instructors to address this "collaborative skills gap" and better prepare students for working in diverse teams. The main goals of this project were to create a "community of practice" (CoP) on collaboration at UWaterloo and develop a set of resources for both students and instructors.

During this talk, we will discuss the activities and outcomes of our CoP, which have included several workshops and presentations, a Teams group for UWaterloo instructors, and a set of resources instructors can use (e.g., handouts on the benefits of collaboration, techniques for collaborative brainstorming, and providing constructive feedback, as well as an overview of concepts and practices for effective teamwork.) In addition to raising awareness about our CoP and the resources we created, our talk will discuss challenges we faced in sustaining the CoP and solicit ideas for how we can better share our expertise and experience with one another to build collective capacity for helping students develop these key skills.

Takeaways:

- This Community of Practice (CoP) has been successful in bringing together UWaterloo instructors from across campus to share knowledge, practices, and ideas for teaching students how to be more effective collaborators.
- Any UWaterloo instructor can join our community of practice space on MS teams.
- Our Teams site contains the resources we've developed, announcements about future meetings, and channels for sharing knowledge and ideas.

References:

- American Management Association (2012), Critical skills survey. URL: https://www.amanet.org/assets/1/6/2012-critical-skills-survey.pdf
- Bialek, M., and Fadel, C. (2015). "Skills for the 21st Century: What should students learn?" Center for Curriculum Redesign. URL: https://curriculumredesign.org/wp-content/uploads/CCR-Skills_FINAL_June2015.pdf
- Gaskell, A. (2017). New study finds that collaboration drives workplace performance. *Forbes.* https://www.forbes.com/sites/adigaskell/2017/06/22/new-study-finds-that-collaboration-drives-workplace-performance/?sh=21396083d025
- Harder, C., Jackson, G., & Lane, J. (2014). "Talent is not enough: Closing the skills gap." Canada West Foundation.

- Mashek, D. (2021). "Opinion: College graduates lack preparation in the skill most valued by employers – collaboration." URL: https://hechingerreport.org/opinion-college-graduates-lack-preparation-in-the-skill-most-valued-by-employers-collaboration/
- National Association of Colleges and Employers (NACE). (2021). The key attributes employers seek on college graduates' resumes [web]. URL: https://www.naceweb.org/about-us/press/the-key-attributes-employers-seek-on-college-graduates-resumes/
- Rockwood, K. (2021), "The hard facts about soft skills." URL: https://www.shrm.org/hr-today/news/hr-magazine/summer2021/pages/why-soft-skills-are-important.aspx

Session 304: Presentations

304a: Understanding Current Empathy-Based Pedagogy in Engineering Education at the University of Waterloo *

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Kate Mercer, Library, University of Waterloo

Stephanie Mutch, Systems Design Engineering, University of Waterloo

Empathy is a necessary soft skill for 21st century engineers that benefits students by supporting deeper understanding of users and effective teamwork, increased creativity, and ethical skill development [1-4]. Some disciplines outside engineering, such as medicine, embed a structured approach to teaching empathy in their curricula. While there are case-studies presenting empathy-focused engineering education approaches in specific classes or connected to specific projects (e.g., [5]–[11]), there is no holistic inspection of empathy perceptions and education across an engineering faculty. This paper presents a preliminary perspective of faculty empathy perceptions and empathy-based pedagogy at the University of Waterloo.

This research begins to develop an understanding of (1) instructors' empathy knowledge, perceptions, and values and (2) empathy-based pedagogy in engineering and architecture courses. By presenting both qualitative and quantitative data from a faculty-wide survey (n = 40) that was sent to engineering faculty (n = 37) and others who teach engineering students regardless of home faculty (n = 3), this paper shows an overview of empathy perceptions and pedagogy across the faculty, sessionals, and staff. Many respondents saw the value of empathy in some key broad areas of engineering and architecture work including design, collaborations, teamwork, and problem solving. Respondents indicated that empathy as a professional skill was moderately to extremely important. Interestingly, there was a wider range of responses in terms of the importance of teaching empathy in undergraduate programs with seven respondents ranking teaching empathy as 'slightly important' or 'not at all important'. Only 17 of the survey respondents indicated that they included empathy-focused instruction over the last two years ranging from explicit instruction to embodying an empathetic teaching style. This insight into academic viewpoints and inclusion of empathy in undergraduate engineering instruction, while preliminary and based on a relatively small sample size, represents an important first step in understanding existing perceptions and identifying next steps towards a holistic Canada-wide assessment of empathy pedagogy.

Takeaways:

- Understand instructors' current knowledge of empathy.
- Identify differences in instructors' knowledge, perceptions and values associated with empathy.
- Understand instructor rationales and approaches for incorporating empathy-based-pedagogy into their courses.

References:

(1) M. H. Davis, "A multidimensional approach to individual difference in empathy," in *JSAS Catalog of Selected Documents in Psychology*, 1980, p. 85.
(2) J. Strobel, J. Hess, R. Pan, and C. A. W. Morris, "Empathy and care within engineering: qualitative perspectives from engineering faculty and practicing engineers," *Engineering Studies*, vol. 5, no. 2, pp. 137–159, Aug. 2013, doi: 10.1080/19378629.2013.814136.
(3) X. Tang, "From 'Empathic Design' to 'Empathic Engineering': Toward a Genealogy of Empathy in Engineering Education," Salt Lake City, Utah, 2018, p. 22414.

(4) J. Walther, S. E. Miller, and N. W. Sochacka, "A Model of Empathy in Engineering as a Core Skill, Practice Orientation, and Professional Way of Being," *Journal of Engineering Education*, vol. 106, no. 1, pp. 123–148, 2017, doi: https://doi.org/10.1002/jee.20159.

(5) J. L. Hess, S. Miller, S. Higbee, G. A. Fore, and J. Wallace, "Empathy and ethical becoming in biomedical engineering education: a mixed methods study of an animal tissue harvesting laboratory," *Australasian Journal of Engineering Education*, vol. 0, no. 0, pp. 1–11, Jul. 2020, doi: 10.1080/22054952.2020.1796045.

(6) G. Hoople and A. Choi-Fitzpatrick, "Engineering Empathy: A Multidisciplinary Approach Combining Engineering, Peace Studies, and Drones," Columbus, Ohio, 2017, p. 19372.

(7) D. G. Johnson, N. Genco, M. N. Saunders, P. Williams, C. C. Seepersad, and K. Hölttä-Otto, "An Experimental Investigation of the Effectiveness of Empathic Experience Design for Innovative Concept Generation," *Journal of Mechanical Design*, vol. 136, no. 5, pp. 052009, 12 pages, Mar. 2014, doi: 10.1115/1.4026951.

(8) N. Genco, D. Johnson, K. Ho¨ltta¨-Otto, and C. C. Seepersad, "A Study of the Effectiveness of Empathic Experience Design as a Creativity Technique," Jun. 2012, pp. 131–139. doi: 10.1115/DETC2011-48256.

(9) S. Raviselvam, K. Hölttä-Otto, and K. L. Wood, "User Extreme Conditions to Enhance Designer Empathy and Creativity: Applications Using Visual Impairment," presented at the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Dec. 2016. doi: 10.1115/DETC2016-59602.

(10) K. Battarbee and I. Koskinen, "Co-experience: user experience as interaction," *International Journal of CoCreation in Design and Arts*, vol. 1, no. 1, pp. 5–18, 2005.

(11) R. Pedersen, "Empathy development in medical education--a critical review," *Med Teach*, vol. 32, no. 7, pp. 593–600, 2010, doi: 10.3109/01421590903544702.

304b: Risky Teaching: Creating Connections with Online Trauma Informed Pedagogy

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Colleen McMillan, Renison University College

Julia Rubini, Renison University College

Rapidly shifting to online learning for higher education institutions due to the impact of COVID-19, led to increased and multiple stressors for students and faculty. With this shift, students are reporting a higher prevalence in feelings related to trauma, depression, anxiety, hopelessness, and isolation (Hitchcock et al., 2021; Son et al., 2020). The online context poses specific challenges in developing relationships with students and being able to identify mental health challenges for students, including those related to trauma. This study aimed to investigate the extent to which faculty understood and utilized trauma informed pedagogy in social work education and how students experience trauma content in undergraduate and graduate course work. This multi-institutional project includes three Canadian post-secondary institutions at five sites: University of Waterloo, University of Calgary (Calgary, Edmonton and Lethbridge sites) and University of Manitoba, in partnership with D2L and The Centre for Teaching Excellence. Five student research assistants, two PhD students, and two data analysts were members of the research team.

Utilizing a sequential mixed method research design (Creswell & Clark, 2011), research questions included: a) what do social work educators understand is trauma informed pedagogy in an online environment; and b) can using a trauma informed model of teaching support student mental health? A literature baseline was developed of trauma informed approaches and teaching practices in an online environment that support student mental health. Quantitative and Qualitative research findings drew upon student, faculty and field educator reflections to inform the development of a trauma-informed pedagogical model. Focus groups engaged students who described their experiences in online learning environments related to trauma-informed teaching strategies. Findings are presented in themes with suggestions to apply the study results across disciplines for enhancing trauma informed pedagogy and fostering connections in online university educational settings will be shared.

Takeaways:

- Understand the current landscape and emerging research of trauma-informed pedagogy and how this pedagogy can support student mental health in an online environment.
- Identify critical ideas and themes, such as relationships and partnerships, relevant to trauma informed pedagogy.
- Summary PDF of trauma-informed pedagogy recommendations for online learning formats, full bibliography, and a TIP model will be provided.

References:

- Branson, D., Radu, M., & Loving, J. (2019). Adverse childhood experiences scores: When social work students and trauma mix. Journal of Baccalaureate Social Work, 24. 339-360. 10.18084/1084-7219.24.1.339.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa
- Carello, J., & Butler, L.D. (2015). Practicing what we teach: Trauma-informed educational practice. Journal of Teaching in Social Work, 35(3), 262-278.
- Chirikov, I., Soria, K. M, Horgos, B., & Jones-White, D. (2020). Undergraduate and Graduate Students' Mental Health During the COVID-19 Pandemic. UC Berkeley: Center for Studies in Higher Education. Retrieved from https://escholarship.org/uc/item/80k5d5hw
- Creswell, J.W., & Plano Clark, V.L. (2011) Designing and Conducting Mixed Methods Research. 2nd Edition, Sage Publications, Los Angeles

- Gutierrez, D., & Gutierrez, A. (2019). Developing a trauma-informed lens in the college classroom and empowering students through building positive relationships. Contemporary Issues in Education Research, 12(1), 11-18. https://doi.org/10.19030/cier.v12i1.10258
- Hitchcock, L.I., Creswell Báez, J., Sage, M., Marquart, M., Lewis, K, & Smyth, N.J. (2021). Social work educators' opportunities during COVID-19: A roadmap for trauma-informed teaching during crisis, Journal of Social Work Education, 57:sup1, 82-98, DOI:10.1080/10437797.2021.1935369
- Marshall, C. & Rossman, G. (2016). Designing Qualitative Research. 6th Edition, SAGE, Thousand Oaks.
- Negrete, M. (2020). Adverse childhood experiences of social work students and implications for field specialization and practice. Electronic Theses, Projects, and Dissertations. 1033. https://scholarworks.lib.csusb.edu/etd/1033
- Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the United States: Interview survey study. Journal of medical Internet research, 22(9), e21279. https://doi.org/10.2196/21279

304c: Collaborative Reading Strategies to Engage Readers and Mitigate Reading Anxiety*

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

Annik Bilodeau, Spanish, University of Waterloo

Jessica Rachael Ross, Psychology, University of Waterloo

Learning to read an academic paper efficiently is critical for university students; yet we rarely teach them how to do it (Keshav). It's no surprise, then, that students sometimes experience increased anxiety levels or linguistic difficulties when faced with challenging materials (Hoeft). Academic writing is, after all, its own genre, and can be daunting even for trained readers. As instructors, we often overlook how reading alone to prepare for class can be anxiety-inducing for students.

Collaborative reading—reading with a partner or as a class—is effective to lower anxiety levels and motivate students (Young, 2021). It also fosters a sense of community in the classroom, and helps to dig deeper into issues raised in the texts, as students can access a larger body of knowledge (Masri, Morgan).

With that in mind, I implemented collaborative reading strategies in Intermediate and Advanced Spanish courses. This presentation shares the findings and resources I developed as part of the LITE grant "Assessing the Benefits of Collaborative Reading to Mitigate Foreign Language Reading Anxiety." Our objectives were to 1. mitigate the negative effects of reading anxiety and engaging with academic texts, and 2. increase students' reading comprehension.

Most collaborative reading models have students read asynchronously, often using the platform Perusall (Masri, Morgan). By contrast, in my classes students approach the text synchronously (Scharold). We propose that reading in pairs, instead of "as a group" also mitigates anxiety, as reading in group, even asynchronously, can still be perceived as "performing in front of the class."

In this presentation, we will share preliminary results of our ongoing study. We will situate "foreign language reading anxiety," and suggest that even instructors who do not teach languages can apply a collaborative reading practice to academic reading. Finally, we will provide instructors with specific strategies to implement in their classes.

Takeaways:

- Collaborative reading lowers reading anxiety in students.
- By lowering their anxiety, students understand the readings better, and in turn increase their performance on tests.
- Participants will receive a list of strategies they can use to engage all students in academic reading within their classes.

References:

- Brantmeier, C. (2005). Anxiety about L2 reading or L2 reading tasks? A study with advanced language learners. The Reading Matrix, 5(2), 67–85.
- Deale, C. S., & Seung Hyun (Jenna) Lee. (2021). To Read or Not to Read? Exploring the Reading Habits of Hospitality Management Students. Journal of Hospitality & Tourism Education, 33(3). https://doi.org/10.1080/10963758.2020.1868317
- Hoeft, M. E. (2012). Why University Students Don't Read: What Professors Can Do to Increase Compliance. International Journal for the Scholarship of Teaching and Learning, 6(2). https://doi.org/10.20429/ijsotl.2012.060212

- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. The Modern Language Journal, 70, 125–132. https://doi.org/10.1111/j.1540-4781.1986.tb05256.x
- Kane, J., & Mushtare R. (Hosts). (2020, June 10). Pedagogies of Care: Digital Reading, (No. 139). [Audio Podcast Episode]. Tea for Teaching. http://teaforteaching.com/139-pedagogies-of-care-digital-reading/
- Keshav, S. (2007). How to read a paper. ACM SIGCOMM Computer Communication Review Archive 37(3), 83–84. https://doi.org/10.1145/1273445.1273458
- MacIntyre, P. D. (1999). Language anxiety: A review of the research for language teachers. In Young, D. J. (Ed.), Affect in foreign language and second language learning: A practical guide to creating a low-anxiety classroom atmosphere (pp. 24–25). Boston: McGraw-Hill.
- Masri, L. (2021, May 17). Keeping ESL Learners Engaged in Online Reading Activities on Perusall. [Presentation]. Perusall Exchange.
- Morgan, J. E. (2021, May 17). #SayMore: Using Perusall Out of Class to Focus Classroom Discussion. [Presentation]. Perusall Exchange.
- Mikami, H. (2019). Reading anxiety scales: Do they measure the same construct? Reading in a Foreign Language, 31(2), 249–268.
- Saito, Y., Garza, T. J., & Horwitz, E. K. (1999). Foreign language reading anxiety. The Modern Language Journal, 83, 202–218. https://doi.org/10.1111/0026-7902.00016
- Sell, J. (2005). Why Teach Literature in a Foreign Language Classroom? Encuentro, 15, 86–93. www.encuentrojournal.org/textos/11Sell.pdf.
- Sellers, V. D. (2000). Anxiety and reading comprehension in Spanish as a foreign language. Foreign Language Annals, 33, 512–520.
- Scharold, D. (2021, May 17). Havin' a Jam: Synchronous Social Annotations with Perusall. [Presentation]. Perusall Exchange.
- Shepin, L. G. (2019) Making Authentic Literary Texts Relevant, Meaningful, and Fun in Advanced Beginner and Intermediate Spanish-language Classrooms. Hispania, 102(3) 313–318. https://doi.org/10.1353/hpn.2019.0069
- Young, C. E. (2021, May 17). No More Fake Reading: Benefits of Social Annotation. In a Hybrid High School English Class. [Presentation]. Perusall Exchange.
- Young, D. (2000). An Investigation into the Relationship between L2 Reading Anxiety and L2 Reading Comprehension, and Self-Reported Level of Comprehension Topic Familiarity Features of an L2 Text ad Reading Ability in the L1 and L2. Current Research on the Acquisition of Spanish. (Eds.) Ron Leow & Cristina Sanz. Summerville: Cascadilla Press. 15–33.

Session 305: Panel Discussion - Faculty Interculturality through the Eyes of Internationally-Educated Students: Research into Practice

Christina Page, Kwantlen Polytechnic University

Lovepreet Kaur Deol, Kwantlen Polytechnic University

Smriti Kaur, Kwantlen Polytechnic University

Prabhjot Singh Mann, Kwantlen Polytechnic University

As postsecondary educators, we recognize the need to become effective intercultural teachers. Often, we find guidance on intercultural teaching priorities through comprehensive frameworks developed by experts in the teaching and learning sector (e.g., Dimitrov & Haque, 2016; Lee et al., 2017). While these frameworks have much to offer us in our learning, we can enhance our knowledge by learning from the expertise of our student partners on their own learning (Garson et al., 2016; Ryan, 2011).

This presentation draws on knowledge gained from student experts in the qualitative phase of a transformative mixed-methods study (Mertens, 2007). The paradigm and research design highlights the role of students as experts on their own experience, and the need for students who may be marginalized in the context of a neocolonial international educational paradigm to take the lead in identifying priorities for change.

Aligning with the conference theme of highlighting students as experts on teaching and learning processes, the session combines a research presentation, learning from student panelists, and an exploration of practical action steps. The presenters will share key learnings from the qualitative research, including the ways of faculty knowing, being, and doing that are most valued by internationally-educated students. Student panelists will share stories to illustrate positive faculty practices that can make a significant difference. Finally, participants will be guided through a guided reflection exercise to identify practical next steps for their teaching practice.

As we look to create inclusive learning environments for students from all cultural identities, we seek to highlight the ways in which we can learn from student experiences and follow student priorities in shaping the intercultural teaching agenda.

Learning Outcomes: By the end of this session, participants will be able to:
- Identify student intercultural teaching priorities.
- Listen empathically to student stories of effective and ineffective teaching practices.
- Name next steps in changing their intercultural teaching practice.

Takeaways:

- When shaping intercultural teaching priorities for educator development, listening to student voices is often a neglected practice.
- A key concern of internationally-educated students is the desire for faculty to facilitate strong intercultural student-to-student relationships, including opportunities to work in diverse teams.
- Attending to student language development in an empathetic and respectful way supports students' sense of belonging and effective learning.
- Simple strategies early in the semester can help educators learn about students, their needs, and priorities.

References:

- Dimitrov, N., & Haque, A. (2016). Intercultural teaching competence: A multi-disciplinary model for instructor reflection. Intercultural Education, 27(5), 437–456. https://doi.org/10.1080/14675986.2016.1240502

- Garson, K., Bourassa, E., & Odgers, T. (2016). Interculturalising the curriculum: Faculty professional development. Intercultural Education, 27(5), 457–473. https://doi.org/10.1080/14675986.2016.1240506
- Lee, A., Felten, P., Poch, R. K., Solheim, C., & O'Brien, M. K. (2017). Teaching interculturally: A framework for integrating disciplinary knowledge and intercultural development. Stylus Publishing, LLC.
- Mertens, D. M. (2007). Transformative paradigm: Mixed methods and social justice. Journal of Mixed Methods Research, 1(3), 212–225. https://doi.org/10.1177/1558689807302811
- Ryan, J. (2011). Teaching and learning for international students: Towards a transcultural approach. Teachers and Teaching, 17(6), 631–648. https://doi.org/10.1080/13540602.2011.62513

Session 306: Panel Discussion - Promoting Success through Inclusive Pedagogy

Megan McCarthy, Psychology, University of Waterloo

Jay Dolmage, English, University of Waterloo

Amanda Garcia, Math, University of Waterloo

Aimée Morrison, English, University of Waterloo

Kim Nguyen, Communication Arts, University of Waterloo

Students come to the classroom with a wide variety of experiences, cultures, abilities, skills, and personalities, and traditional teaching methods do not always meet their diverse needs. Inclusive teaching strategies can create more equitable classrooms and improve learning for all students by embracing diversity. Through the planning of course designs and classroom facilitation strategies that are structured to work for more students, inclusive teaching puts student needs at the center of the learning environment. Inclusive pedagogy specifically focuses on both the design of equitable course materials and assessments, and the facilitation of a course environment that gives all students the opportunity to interact, collaborate, and engage in their learning in meaningful ways. Importantly, inclusive teaching is flexible and responsive to student needs and input, fostering partnerships between teachers and students.

After explaining the inequities that arise in the classroom and providing a framework for inclusive teaching, panelists (members of the FAUW Equity Committee) will draw on their own teaching and research experiences to demonstrate approaches to inclusive pedagogy that create more equitable classrooms and foster success for a diverse body of students. Specifically, panelists will discuss inclusive approaches to attendance and participation, designing inclusive assessments, promoting a sense of belonging, and facilitating connection.

Takeaways:

- Inclusive approaches to teaching foster talent in all students, but especially those who come from groups traditionally excluded in higher education.
- Inclusive teaching is flexible and responsive to student needs and input, fostering partnerships between teachers and students.

References:

- Haak, D. C., HilleRisLambers, J., Pitre, E., & Freeman, S. (2011). Increased structure and active learning reduce the achievement gap in introductory biology. Science, 332, 1213–1216. https://doi.org/10.1126/science.1204820
- Eddy, S. L., & Hogan, K. A. (2014). Getting under the hood: How and for whom does increasing course structure work? CBE—Life Sciences Education, 13, 453–468. https://doi.org/1187/cbe.14-03-0050
- Tanner, K. D. (2013). Structure matters: Twenty-one teaching strategies to promote student engagement and cultivate classroom equity. CBE— Life Sciences Education, 12, 322–331. https://doi.org/10.1187/cbe.13-06-0115

Session 307: Workshop - Inviting Partnership through the Syllabus: Designing for More Accessible & Flexible Teaching/Learning Experiences

Wren Alden, Waterloo Undergraduate Student Association, University of Waterloo

Through the ongoing "pivots" around remote learning and away from the expectation of near-100% attendance for near 100% of a class, students, instructors, and educational developers have become more aware of pitfalls and potential opportunities when integrating asynchronous and remote options into course design. However, many have lacked the time, resources, or guidance to reflect on these insights and integrate them into practice. We center around the syllabus as a site to invite students and instructors into partnerships and collaboration towards inclusive learning experiences, drawing from diverse experiences with remote learning.

This workshop is grounded in student voices and instructor experiences of (in)accessible teaching and learning in COVID-times, where flexibility and universal design have become even more important. Led by the work of the student Committee on Access & Disability at the University of Waterloo, we will highlight how to proactively build partnerships with students rather than responding to individual cases on an ad-hoc basis. We also recognize the additional stressors that come with trying to "do accessibility right" and provide suggestions that lighten the workload of instructors rather than continuing to add to it.

Through this workshop, participants will consider how learners respond to various aspects of remote and flexible course design, identify what barriers may arise as part of existing course designs, adapt examples and principles to their own instructional/design practices, prepare to implement feasible and sustainable changes, and appreciate the value of centering the diverse needs of learners in their practice going forward. More accessible and inclusive course design that keeps partnerships at the center results in more meaningful and engaging experiences for instructors and students. This workshop is "Bring Your Own Syllabus": participants are recommended to bring an outline of course policies and assessments (drafts are welcome!).

Takeaways:

- More accessible, flexible, and inclusive course design that centers the needs of disabled students benefits all students without compromising rigor or creativity.
- Improving accessibility does not have to be burdensome. Instead, it can make instruction easier as we focus on the most meaningful activities, rather than simply the most numerous ones.
- Everything from small, iterative tweaks and large-scale, transformative changes are valuable and worth doing. It is okay to start small -- some progress is better than none.

References:

No direct references in abstract/proposal material; however, all principles and recommendations have associated cases of implementation and supporting literature.

Thursday, April 28, 2022

Keynote: 11:00 AM– 12:00 PM

Igniting Our Practice

Diana Skryzdlo, Statistics and Actuarial Science, University of Waterloo

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

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

In our Igniting our Practice plenary session, we ask inspirational University of Waterloo instructors to draw us into their disciplines and into the learning spaces they create for their students by teaching us a concept from their own courses. The methods they use are diverse, but the intention underlying them is the same: to engage students in thinking about important disciplinary concepts and questions. After each presenter takes us into their online learning space, we'll have the opportunity to reflect on and discuss the ways in which these methods might be adapted in our own fields and within our own classrooms.

Diana will demonstrate how she uses coin-flipping games in small groups to allow Statistics students to discover the properties of Markov Chains for themselves. The results of the exploratory exercise then provide tangible examples to refer to when the theory and terminology is introduced later.

Sean will introduce a design thinking tool called an Empathy Map that can be used by students to better understand the experiences of customers, investors, and other key stakeholders so that you can identify opportunities for developing innovative solutions. Using Zoom breakout rooms coupled with Google Docs this session will use the experience of attending an online conference to ground the activity.

Concurrent Sessions (400): Thursday, April 28 (12:15pm – 1:15pm ET)

Session 401: Presentations

401a: How Instructor-Student Partnerships Impact Teaching and Learning: Exploring Instructor Perspectives of an Online Learning Assistant (OLA) Program

Katie Knapp, Work-Learn Institute, University of Waterloo

Iris Xing, Work-Learn Institute, University of Waterloo

The COVID-19 pandemic challenged instructors to rapidly transition to remote instruction. They were asked to manage, many for the first time, the dynamics of technology and assessment in a remote setting, leading to a range of challenges (Adedoyen & Soykan, 2020; Bozkurt et al., 2020). At the same time, the pandemic negatively impacted student employment such that many talented students struggled to find opportunities for work. In response to this situation, the University of Waterloo created the online learning assistant (OLA) program. Co-operative education students were matched with instructors to assist in the transition to remote instruction. This grounded theory research study explores instructors' experiences with the OLA program. It seeks to understand how these instructor-student partnerships helped instructors and influenced their perspectives on teaching and learning. Semi-structured interviews with instructors who participated in the program revealed that partnerships between instructors and OLAs encouraged a reciprocal learning process in which both sides of the partnership experienced learning opportunities, ultimately bolstering the quality of teaching and learning (Cook-Sather et al., 2014; Healey et al., 2014; Könings et al., 2021). This presentation highlights challenges experienced by instructors transitioning to remote instruction and the ways in which the OLA program helped to mitigate those challenges. It also describes the impact of instructor-student partnerships on teaching and learning by exploring the ways in which instructors incorporated the student perspective into their course development and design.

Takeaways:

- Instructors faced a range of complex challenges when shifting to remote instruction in response to the COVID-19 pandemic and co-op student-instructor partnerships offer a mechanism for tackling some of the challenges that emerged.
- Student-instructor partnerships can result in reciprocal learning, positively influencing the teaching and learning process.

References:

- Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2020.1813180
- Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S. R., Al-Freih, M., Pete,
- J., Olcott, D., Jr., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coetlogon, P., Shahadu, S., Brown, M., Asino, T. I., Tumwesige, J., … Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education, 15*, 1-126.
- Cook-Sather, A., Bovill, C., & Felten, P. (2014). *Engaging students as partners in learning and teaching: A guide for faculty*. John Wiley & Sons.
- Healey, M., Flint, A., & Harrington, K. (2014). *Engagement through partnership: Students as partners in learning and teaching in higher education*. York: HE Academy.
- Könings, K. D., Mordang, S., Smeenk, F., Stassen, L., & Ramani, S. (2021). Learner involvement in the co- creation of teaching and learning: AMEE guide No. 138. *Medical Teacher, 43*(8), 924-936.

401b: Scaling Down: Adapting Insights from an Institutional Undergraduate Learning Assistants Program

Sreyasi Biswas, University of Calgary

Kimberly Grant, University of Calgary

While the most familiar form of pedagogical student partnerships may be graduate student teaching assistants working with undergraduate students, this session highlights a program that involved partnering with undergraduate Learning Assistants. The Learning Assistant model is a form of near-peer instruction model which has been shown to be effective in promoting student learning, engagement and satisfaction as well as improving student retention (Groccia and Miller 1996; Jardine, Levin, and Cooke 2020; Knight et al. 2015; Pivkina 2016; Talbot et al. 2015). Learning Assistants (LAs) are undergraduate students who have both disciplinary and pedagogical knowledge and are, thus, able to facilitate collaborative peer learning in class as well as partner in course design efforts (Goertzen et al. 2011; Otero et al. 2006, Jardine, Levin, and Cooke 2020; McHenry et al. 2010; Pavlacic et al. 2018). The program involves LAs' participation in three fundamental components: (1) a semester-long pedagogy course; (2) weekly preparatory meetings with instructors (3) the actual practice of facilitating learning within a classroom and guiding students in their own learning (Otero, 2015). There are several factors that make this model of student-instructor partnership successful. We recognize, though, that depending upon institutional context, it may not be feasible to develop and run an elaborate LA program. However, it is possible to incorporate the beneficial elements of this program into our teaching practices.

In this session, we highlight with evidence the different elements that make this partnership model successful and offer alternate strategies to incorporate these elements into our course design and teaching efforts at an individual scale. We demonstrate using examples, strategies that can be implemented across different class sizes and modalities. We emphasize the importance of building authentic partnerships with undergraduates to support course design efforts and also to provide valuable learning support to our students.

Takeaways:

- Participants will become more familiar with the key aspects of the undergraduate Learning Assistant model.
- Participants will learn as well as share strategies to incorporate some of the benefits of the Learning Assistant model in smaller scale within their own classes.

References:

- Goertzen, Renee Michelle, Eric Brewe, Laird H. Kramer, Leanne Wells, and David Jones. 2011. "Moving toward Change: Institutionalizing Reform through Implementation of the Learning Assistant Model and Open Source Tutorials." Physical Review Special Topics - Physics Education Research 7 (2): 020105. https://doi.org/10.1103/PhysRevSTPER.7.020105.
- Groccia, James E., and Judith E. Miller. 1996. "Collegiality in the Classroom: The Use of Peer Learning Assistants in Cooperative Learning in Introductory Biology." Innovative Higher Education 21 (2): 87–100. https://doi.org/10.1007/BF01243700.
- Jardine, Hannah E., Daniel M. Levin, and Todd J. Cooke. 2020. "Group Active Engagement in Introductory Biology: The Role of Undergraduate Teaching and Learning Assistants." In Active Learning in College Science: The Case for Evidence-Based Practice, edited by Joel J. Mintzes and Emily M. Walter, 451–66. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-33600-4_28.
- Jardine, Hannah E., Daniel M. Levin, and Todd J. Cooke. 2020. "Group Active Engagement in Introductory Biology: The Role of Undergraduate Teaching and Learning Assistants." In Active Learning in College Science: The Case for Evidence-Based Practice, edited by Joel J. Mintzes and Emily

M. Walter, 451–66. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-33600-4_28.

- Knight, Jennifer K., Sarah B. Wise, Jeremy Rentsch, and Erin M. Furtak. 2015. "Cues Matter: Learning Assistants Influence Introductory Biology Student Interactions during Clicker-Question Discussions." CBE—Life Sciences Education 14 (4): ar41. https://doi.org/10.1187/cbe.15-04-0093.
- McHenry, Nadine, Andrea Martin, Annalisa Castaldo, and Donna Ziegenfuss. 2010. "Learning Assistants Program: Faculty Development for Conceptual Change." International Journal of Teaching and Learning in Higher Education 22 (3): 258–68.
- Otero, Valerie, Steven Pollock, Richard McCray, and Noah Finkelstein. 2006. "Who Is Responsible for Preparing Science Teachers?" Science 313 (5786): 445–46. https://doi.org/10.1126/science.1129648.
- Pavlacic, Jeffrey, Megan Culp, Summer Harvey, Christie Cathey, and Erin Buchanan. 2018. "Using Undergraduate Learning Assistants to Aid in Course Redesign." Modern Psychological Studies 23 (2). https://scholar.utc.edu/mps/vol23/iss2/2.
- Pivkina, Inna. 2016. "Peer Learning Assistants in Undergraduate Computer Science Courses." In 2016 IEEE Frontiers in Education Conference (FIE), 1–4. https://doi.org/10.1109/FIE.2016.7757658.
- Talbot, Robert M, Laurel M Hartley, Katrina Marzetta, and Bryan S Wee. 2015. "Transforming Undergraduate Science Education With Learning Assistants: Student Satisfaction in Large Enrollment Courses," 7.

401c: Social Influences on Relevance in Co-Op: Student Perspectives from the Online Learning Assistant (OLA) Program

Amie Durston, Work-Learn Institute, University of Waterloo

Marissa Radman, Work-Learn Institute, University of Waterloo

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

Early in the COVID-19 pandemic, the online learning assistant (OLA) program was created to 1) assist faculty with the transition to online teaching, and 2) provide co-op students with jobs during pandemic-era hiring difficulties. Hundreds of OLAs each term helped professors develop online courses, content, and assessments. Due to the rapid implementation of this position and the desperation of students at the time, perceptions of the role were unclear. Specifically, it was unknown if students felt this job aligned with their career ambitions or academics (i.e., relevance), a critical aspect of high-quality work-integrated learning (WIL) experiences (Drewery et al., 2015). The current presentation outlines qualitative research on the relevance of this experiential and student-centred program. Note that faculty perspectives of this program are explored in a poster session at this conference.

Semi-structured interviews were analyzed. Interviewers asked about the OLAs' experiences, with a specific focus on their social interactions, how relevant the job was, and the potential relationships between these variables. Results show that this experience was not explicitly relevant for most, although components of social interactions with professors resolved said irrelevance. In other words, faculty and co-op students were able to co-create a high-quality experiential partnership. Overall OLAs enjoyed their experiences – they felt impactful and gained skills they can use in the future.

This work shows that having students as partners in design and partners as experts can efficiently ensure academic needs are met, particularly during times of change and adversity. Further, with proper support, students in these partnerships can develop relevant skills and knowledge to propel their careers forward. Findings can be used as a framework for emergency co-op placement creation in the future. Results should also be used to inform WIL supervisors and practitioners on how to foster high-quality work terms regardless of the job responsibilities.

Takeaways:

- Using students as partners in design and partners as experts can be a successful avenue for faculty, co-operative, and students alike, especially in the face of adversity. Additional focus should be given to student supervision and socialization in these large-scale initiatives to ensure adequate work-term relevance and quality.
- Providing social support, autonomy, and development-oriented socialization can enhance the relevance of students' work experiences, and consequentially their productivity, even with "irrelevant" job requirements.

References:

- Drewery, D., & Pretti, T. J. (2021). The building blocks of relevant work experiences. International Journal of Work-Integrated Learning, 22(2), 241-251. https://www.ijwil.org/files/IJWIL_22_2_241_251.pdf
- Drewery, D., Pretti, T. J., & Barclay, S. (2016). Examining the Effects of Perceived Relevance and Work-Related Subjective Well-Being on Individual Performance for Co-Op Students. Asia-Pacific Journal of Cooperative Education, 17(2), 119-134. https://files.eric.ed.gov/fulltext/EJ1114001.pdf
- Drewery, D., Pretti, T. J., & Pennaforte, A. (2015). Conceptualizing the quality of cooperative education work term experiences: An exploration from the students' perspective. In 19th WACE World Conference

on Copperative and Work-iIntegrated Education, Kyoto, Japan. Retrieved from http://www. waceinc. org/kyoto2015/assets/proceedings/Drewery. pdf.

- Kay, J., McRae, N., & Russell, L. (2020). Two institutional responses to work-integrated learning in a time of COVID-19: Canada and Australia. International Journal of Work-Integrated Learning, 21(5), 491-503. https://files.eric.ed.gov/fulltext/EJ1271564.pdf
- Nevison, C., Drewery, D., Pretti, J., & Cormier, L. (2017). Using learning environments to create meaningful work for co-op students. Higher Education Research & Development, 36(4), 807-822. https://doi.org/10.1080/07294360.2016.1229268

Session 402: Presentations

402a: Multi-Institution Student-Centered Leadership for Co-Curricular Partnerships to Support the Canadian Engineering Grand Challenges

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The pressing need for developing leadership skills has been recognized by multiple stakeholders including faculty and employers. Leadership has attracted significant attention in the context of engineering education with the increasing complexity of global challenges, urbanization of our communities, and globalization of the societal needs. The ability of co-curricular activities to offer meaningful learning experiences for students in engineering and beyond to develop and apply leadership skills, in an otherwise packed curriculum, has attracted significant interest. Leveraging virtual environments and students' growing digital competence, and motivated by the Canadian Engineering Grand Challenges (CEGC), challenges recently developed by Engineering Deans in Canada, engineering faculty members and undergraduate students from two institutions, have partnered and developed co-curricular activities centered around the interdisciplinary topic of leadership for sustainability. While the move to virtual communication and meeting environment has its limitations, its ability to facilitate interactions among people physically distant from each other, in different engineering disciplines and locations with minimal resource requirements has been advantageous to support experiential learning.

In this presentation, we will report on the benefits of and opportunities for the creation of co-curricular activities in the form of student-led workshops to foster learning and partnerships across engineering faculty members and undergraduate students from different institutions. The co-curricular activities were developed with a "for-students-by-students" approach that enables partnerships for content creation, testing, planning, delivery, assessment and reflection. The societal nature of the CEGC and the scaffolded approach adopted for the workshop topics makes them applicable to other disciplines, and the ability to recruit from a broader Canadian student body, offering a safe space whereby students increased their self-confidence by moving from roles of participant to facilitator and co-organizer. We will present the student-led approach that was adopted and the lessons learned from the development of co-curricular activities, and highlight potential avenues for fostering similar types of partnerships across other faculties.

Takeaways:

- Incorporating leadership skills development and connecting leadership to a broad awareness of socio-technical responsibilities can be complex in what is a very full engineering curriculum.
- The creation of co-curricular student-developed and led online workshops is a proven and successful mechanism to provide engaging and broadly accessible experiential learning activities to address this learning opportunity.
- Partnerships among students, faculty, and institutions demonstrated a methodology for providing access to learning opportunities that are flexible, scalable, and broadly accessible.

References:

- Goldberg, D. E., and Somerville, M., 2014. A Whole New Engineering: The Coming Revolution in Engineering Education. Threejoy Associates; Douglas, MI.
- Kolb, D. A., 1984. Experiential learning: Experience as the source of learning and development, Prentice Hall, Englewood Cliffs NJ.
- National Academy of Engineering (NAE), 2004. The Engineer of 2020: Visions of Engineering in the New Century. National Academies Press, Washington, D.C.

- National Council of Deans of Engineering and Applied Sciences (NCDEAS), 2019. Canadian Engineering Grand Challenges (2020-2030): Inspiring Action to Improve Life for Canadians and the World, Sherbrooke, QC, Nov. 2019. https://engineeringdeans.ca/en/project/cegc/
- Paul, R.M., 2015. Engineering Leadership Education: A Review of Best Practices, American Society of Engineering Education
- University of Guelph, Guelph Engineering Leadership (GEL) Program, https://www.gel.uoguelph.ca/
- University of Waterloo, Student Leadership Program, https://uwaterloo.ca/student-success/leadership-development/student-leadership-program

402b: Fostering Students as Partners: A Faculty-Wide Examination of Science Undergraduate Students' Perspectives of Pedagogical Partnerships

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There has been a growing discourse within higher education to engage with students as partners and harness the strength of students and faculty working together (1). Engaging in student-faculty partnerships (SFPs) offers benefits to both students and faculty (2,3), yet there is less research on these practices at the STEM level. The purpose of this study was to conduct a faculty-wide investigation to identify the benefits and challenges of SFPs within the Faculty of Science at a mid-sized university in Ontario, Canada. Through surveys (n = 178) and semi-structured interviews (n = 10) with undergraduate students, we examined the types of SFPs occurring within the Faculty of Science as well as gathered insights into students' perspectives of the benefits and challenges they experience engaging in these partnerships. Collaborating with faculty on research projects, teaching assistantships, and being a student leader in an organization with faculty guidance were considered the most impactful partnerships. Students reported social (e.g., teamwork skills), personal (e.g., confidence), academic (e.g., understanding science concepts) and career-related (e.g., employability skills) benefits from their involvement in SFPs. Common barriers included difficulties in engaging in SFPs (e.g., lack of awareness of opportunities), social barriers (e.g., financial stability), power imbalances, difficult working environments (e.g., lack of communication), and personal challenges (e.g., mental health). Awareness of these barriers can inform best practices such as effectively engaging students regardless of academic performance, ensuring opportunities for underrepresented groups, and supporting work-life balance. This study provides valuable strategies for supporting undergraduate student engagement and collaboration through advantageous SFPs.

Following this session, you will:

- Identify and compare the various ways students are working in partnerships within a Faculty of Science
- Identify and compare the benefits and challenges of SFPs among undergraduate students
- Reflect on ways to address barriers and enhance benefits within SFPs

Takeaways:

- Science students are engaging in student-faculty partnerships related to 1) learning, teaching, and assessment, 2) curriculum design and pedagogic consultancy, 3) subject-based research and inquiry, and 4) other activities, including though not limited to community outreach, service learning, and committee work.
- Social (e.g., teamwork skills), personal (e.g., improved confidence), academic (e.g., understanding science concepts) and career-related benefits (e.g., employability skills) were commonly reported by undergraduate students as benefits associated with working in partnership with faculty members.
- Undergraduate students identified barriers to engaging in student-partnership activities (e.g., lack of awareness), social barriers (e.g., financial stability), power imbalances, difficult working environments (e.g., lack of communication), and personal challenges (e.g., mental health) as common challenges while engaging in student-faculty partnerships.

References:

- Matthews, K. E, Cook-Sather, A., & Healey, M. (2018). Connecting learning, teaching, and research through student-staff partnerships: Toward universities as egalitarian learning communities. In V. Tong, A.Standen, A., & M.Sotirious, (Eds.) Shaping Higher Education with Students: Ways to Connect Research and Teaching (pp. 23-29). London: University College of London Press.
- Matthews, K. E., Mercer-Mapstone, L., Dvorakova, S. L., Acai, A., Cook-Sather, A., Felton, P., ... & Marquis, E. (2019). Enhancing outcomes and reducing inhibitors to the engagement of students and staff in learning and teaching partnerships: Implications for academic development. International Journal for Academic Development, 24(3), 246-259.
- Mercer-Mapstone, L., Dvorakova, S. L., Matthews, K. E., Abbot, S., Cheng, B., Felten, P., ...& Swaim, K. (2017). A systematic literature review of students as partners in higher education. International Journal for Students as Partners, 1(1), 1-23.

402c: The Academic Integrity Competency Resource: A Collaborative Effort to Boost Academic Integrity in the Classroom

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Many students transitioning from high school to university lack the necessary information literacy skills, understanding of intellectual property and knowledgebase in citation and referencing required for success in higher education (O'Sullivan & Dallas, 2017; Borrelli, Cerny-Koenig, Pearson-Mims, Williams, Johnson & Perillo, 2010; Gross and Latham, 2012). To better understand the first-year student experience with academic integrity, a partnership was formed between the Faculty of Environment, Student Success Office (SSO) and the Office of Academic Integrity (OAI). Through consultation with students, faculty and support units, a series of challenges and opportunities surfaced. Notably, inconsistencies in student exposure to and experience with academic integrity-related competencies, as well as challenges for instructors in identifying the most beneficial and relevant academic integrity-related resources were identified. These findings led to the formation of yet another valuable partnership between the Student Success Office (SSO), the Office of Academic Integrity (OAI), Centre for Teaching Excellence, Library and the Writing and Communication Centre. This group joined forces to define and develop what has become known as the Academic Integrity Competency Resource (AICR).

The Academic Integrity Competency Resource (AICR) addresses 15 micro-competencies that were identified as being both fundamental to first-year student development and academic integrity. The Academic Integrity Competency Resource (AICR) enables instructors to easily select core competencies relevant to their course and quickly identify available academic integrity resources. In this way, the tool not only helps to clarify which resources are available and most suitable for course integration but can also facilitate further collaboration between instructors and support units. This presentation will discuss the various partnerships that led to the development of the resource, provide an overview of its contents and suggest opportunities for future use. A current limitation of the resource is that it was developed primarily from a social sciences and humanities perspective. Next steps include identifying STEM-specific collaborators to review and expand upon the competencies for inclusion.

Takeaways:

- This session highlights two distinct multi-unit partnerships that led to the creation of a collaboratively developed resource to help instructors develop academic integrity competencies in the classroom.
- The Academic Integrity Competency Resource (AICR) consists of 15 micro-competencies that were identified as being both fundamental to first-year student development and academic integrity.
- The Academic Integrity Competency Resource (AICR) can help attendees identify key resources and connect them with the most applicable support unit partners for further support if desired.

References:

- Borrelli, S., Cerny-Koenig, T., Pearson-Mims C.H., Williams, K. , Johnson, C., Perillo, C. (2010) Collaborative Approach for Teaching Information Literacy in an Introductory Plant Science Course. NACTA Journal, 54 (2) 30 - 36.
- Gross, M. & Latham, D. (2012). What's skill got to do with it?: Information literacy skills and self-views of ability among first-year college students, Journal of the American Society for Information Science and Technology, 63(3), 574-583.
- O'Sullivan, M.K., Dallas, K.B. (2017) A Collaborative approach to implementing 21st Century skills in a High school senior research class. Education Libraries 33(1) https://doi.org/10.26443/el.v33i1.284
- Peters, M., Cadieux, A. (2019). Are Canadian professors teaching the skills and knowledge students need to prevent plagiarism? Int J Educ Integr 15(10) https://doi.org/10.1007/s40979-019-0047-z

- Young, R.L., Miller, G.N.S. & Barnhardt, C.L. (2018). From Policies to Principles: The Effects of Campus Climate on Academic Integrity, a Mixed Methods Study. J Acad Ethics 16, 1–17 https://doi.org/10.1007/s10805-017-9297-7

Session 403: Presentations

403a: The Thematic Diversity Reference Model for English Essay Writing and Assessment in Humanities and Social Sciences

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The learners at the tertiary level show inadequacy in thematic diversity in their essay writing in English, especially in non-English speaking countries. Their effectiveness in developing the assigned topic is unsatisfactory. It affects their creativity and the evaluation of their performance. Though there are guidelines and textbooks for developing writing skills, the inadequate proper training with a proper practice model reflects weak performance at the university level. A topic can be developed in diverse ways from multi-disciplinary, spatial, temporal perspectives. Therefore, a simplified guiding Model is proposed for facilitation.

This paper describes the model's content and instructs how it is to be applied at the pre-writing, writing and post-writing processes. It can be an efficient tool for the students in their written course assignments, essay questions in examinations, and creative writing. It can be an effective tool for teachers to teach and assess expressive language skills like essay writing. A visually designed Thematic Diversity Reference Model (TDRM) for textual production and assessment developed in this research addresses this thematic non-diversity. The topic assigned is approached at four levels hierarchically from 1) Content, 2) Strategic, 3) Tactic, to 4) Logical Approaches. It stimulates feelings, ideas and activities in abstract and concrete ways and different perspectives, as described in the schema theory of J. Piaget and the Social Learning Theory of Albert Bandura, thus diversifying and enhancing the theme or topic assigned and the sub-themes consequently. A case study of analysing an essay written in English in an ESL course explains its usefulness. The analysis was qualitative and quantitative. Thus, the model plays a significant role between the writer and the reader in their activities advocating pedagogical student-centred partnerships in developing teaching, learning and evaluating strategies to writing for better performance and assessment at the tertiary level essay writing. It is more appropriate in social sciences and humanities, including inter-disciplinary and multi-disciplinary subjects.

Takeaways:

- A visually designed Thematic Diversity Reference Model (TDRM) for Textual Production and Assessment developed in this research addresses this thematic non-diversity in essay writing.
- This Model stimulates feelings, ideas, and activities in abstract and concrete ways and different perspectives, as described in the schema theory of J. Piaget and the Social Learning Theory of Albert Bandura.
- The Model facilitates the writer's mind to go diverse and multi-disciplinary.

References:

- Acharya, H. (2011). Activities used in teaching essays. An unpublished Thesis of M.Ed, TU.
- Alsdorf, L. The History of Vegetarianism and Cow-Veneration in India; Asdorf, L., Bollée, W., Eds.; Routledge: Wiesbaden, Germany, 2010; ISBN 0203859596.
- Awasthi, J. R., Bhattarai, G.R. and Khaniya, T.R .(2009) (eds). New generation English. Vidyarthi Prakashan Pvt. Ltd: Kathmandu
- Bandura, A. (1979). Social learning theory. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. 1989. "Social Cognitive Theory." In Annals of Child Development. Vol 6. Six Theories of Child Development, edited by R. Vasta, 1–60. Greenwich, CT: JAI Press.
- Basnet, B. (2008). The proficiency of the students in guided writing. An unpublished Thesis of M.Ed, TU., Kathmandu.

- Braaksma, M. A. H., G. Rijlaarsdam, H. van den Bergh, and B. H. A. M. van Hout-Wolters. 2004. "Observational Learning and Its Effects on the Orchestration of the Writing Process." Cognition and Instruction 22 (1): 1–36.
- Brookhart, S. M. 2001. "Successful Students' Formative and Summative Uses of Assessment Information." Assessment in Education: Principles, Policy & Practice 8 (2): 153–169.
- Carrell, P. L. (1984). Evidence of a formal schema in second language comprehension. Language Learning and Communication, 2, 87-112. http://dx.doi.org/10.1111/j.1467-1770.1984.tb01005.x
- Cohen, L. Manion, L. and Morrison, K.(2010). Research methods in education (6th edition). London: Routledge
- Craig, J.L. (2013). Integrating Writing Strategies in EFL/ESL University Contexts. New York: Routledge
- Creme, P., & Lea, (2003). Writing at University. Maidenhead: Open University Press
- Elbow, P. & Belanoff, P. (2003) Being a Writer. Boston: Mc Graw Hill Higher Education.
- Friedrich, P. (2008). (Ed.) Teaching Academic Writing. New York: Continuum International Publishing.
- Gibbs, G., and C. Simpson. 2004. "Conditions under Which Assessment Supports Students' Learning." Learning and Teaching in Higher Education 1: 3–31.
- Hargreaves, S.M.; Raposo, A.; Saraiva, A.; Zandonadi, R.P. (2021) Vegetarian Diet: An Overview through the Perspective of Quality of Life Domains. Int. J. Environ. Res. Public Health 2021, 18, 4067. https://doi.org/10.3390/ ijerph18084067
- Hartley, J. (2008). Academic Writing and Publishing. London: Routledge
- Hasan, K.M. and Akhand, M.M. (2010) Approaches to writing in EFL/ESL context: Balancing product and process in writing class at tertiary level: Journal of NELTA. Vol-15, Kathmandu, NELTA
- Higgins, R., P. Hartley, and A. Skelton. 2002. "The Conscientious Consumer: Reconsidering the Role of Assessment Feedback in Student Learning." Studies in Higher Education 27 (1): 53–64.
- Iguacel, I.; Miguel-berges, L.; Alejandro, G.; Moreno, L.A.; Juli, C. (2019) Veganism, vegetarianism, bone mineral density, and fracture risk: A systematic review and meta-analysis. Nutr. Rev 2018, Volume 77, Issue 1, January 2019, Pages 1–18, https://doi.org/10.1093/nutrit/nuy045
- Kamler, B., & Thomson, P. (2006). Helping doctoral students write: Pedagogies for Supervision. London: Routledge.
- Kramer, Lindsay (2021) WRITING TIPS: Expository Writing: Everything You Need to Know. https://www.grammarly.com/blog/expository-writing
- Leki (1998). Academic Writing: Exploring Processes and Strategies. (2 nd.ed.) New York: Cambridge.
- Levin, P. (2009) Write great essays. Maidenhead: Open University Press
- McLeod, S. A (2020). "Jean Piaget | Cognitive Theory". Simply Psychology. Background and Key Concepts of Piaget's Theory. Retrieved 12 December 2021. https://www.simplypsychology.org/piaget.html
- MasterClass staff, (2021). What Is Satire? How to Use Satire in Literature, Pop Culture, and Politics—Plus Tips on Using Satire in Writing.
- Mulvanney, M.K. & Joliffe, D.A. (2005). Academic Writing: Genres, Samples and Resources. New York: Pearson Longman
- Nunan, D. (1992). Research methods in language learning. Cambridge: CUP
- Nunan, D. (1989). Understanding language classroom. U.K: Prentice Hall.
- Piaget, Jean (2001). Robert L. Campbell (ed.). Studies in Reflection Abstraction. Sussex: Psychology Press. ISBN 978-1-84169-157-2.
- Vegetarian diet (2021). https://pubmed.ncbi.nlm.nih.gov/?term=diet%2C+vegetarian%5BMeSH+Terms%5D&sort=relevance (accessed on 18 August 2021).
- Richards, J.C., & Miller, S.K. (2005). Doing Academic Writing in Education. New Jersey: Laurence Erlbaum Associates

- Rijlaarsdam, G., M. Braaksma, M. Couzijn, T. Janssen, M. Kieft, H. Broekkamp, and H. van den Bergh. 2005. "Psychology and the Teaching of Writing in 8000 and Some Words. BJEP Monograph Series II, Number 3 – Pedagogy – Teaching for." Learning 1 (1): 127–153.
- Rivers, W. (1968). Teaching foreign language skills. Chicago: Chicago University.
- Ruby, M.B. (2012) Vegetarianism. A blossoming field of study. Appetite 2012, 58, 141–150.
- Sa-ngiamwibool, A. (2007) Enhancing structure and writing expression among EFL Thai students through consciousness-raising instructions: Journal of NELTA. Vol-15, Kathmandu, NELTA
- Thompson, P. & Kamler, B. (2013). Writing for Peer-Reviewed Journals. London: Routledge.
- Vitorino, L.M.; Lucchetti, G.; Leão, F.C.; Vallada, H.; Peres, M.F.P. (2018). The association between spirituality and religiousness and mental health. Sci. Rep. 2018, 8, 1–9.
- Wallace, M. & Gray, A. (2006). Critical Reading and Writing for Postgraduates. Los Angeles: Sage
- White, R. and Arndt, V. (1991). Process writing. London: Longman

403b: Centering Collaboration in Course Design and Delivery

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The Langara Student Success Course (LSSC) is an important college resource that supports students through their adjustment and transition into post-secondary studies by helping them develop the academic and life skills necessary for academic success, and to learn about and connect with other important student support services available at the college. The LSSC encourages students to be more independent, persistent, and resilient, and to take more responsibility for their academic success

As the first course students interact with after registration at snəw̓eyəɬ leləm Langara, we provide key information about how to access relevant college resources and services; respond to students' anxiety and questions about college life and achieving academic success in diverse learning environments and help students at risk manage academic challenges through offering 'just in time' instruction and access to support.

To effectively and sustainably deliver the Langara Student Success Course so that all our students have access and opportunity, the instructional team partners with stakeholders from a variety of perspectives, including students, faculty, curriculum consultants, student services representatives, Indigenous partners, and Internationalization.

In this presentation, we will share 3 ways we have partnered with various stakeholders and knowledge sources at Langara College, discuss the opportunities that these partnerships offered, and comment on the challenges we have encountered.

At the end of this session, participants will be able to identify ways to partner and pinpoint opportunities and challenges of collaborating with diverse stakeholders in their institutions to help maintain a current, relevant, responsive, and inclusive curriculum for a student success course.

Takeaways:

- Some ways to partner with diverse stakeholders are to have them as guest speakers in your course and invite them to share their perspectives on the curriculum.
- An effective way to collaborate with students is to engage them in the co-creation of a Student Ambassador Program.
- You can identify knowledge sources in your institution by connecting to faculty, students, and various departments, such as Indigenization, Centre for Intercultural Engagement, and Student Services.

References:

- Felten, Peter, and Leo M. Lambert. *Relationship-Rich Education: How Human Connections Drive Success in College*. Johns Hopkins University Press, 2020.
- Novak, Katie, and Mirko Chardin. *Equity by Design: Delivering on the Power and Promise of UDL*. Corwin Press, Inc, 2021
- Pete, Shauneen, et al. "Decolonizing Our Practice: Indigenizing Our Teaching." *First Nations Perspectives Journal*, vol. 5, no. 1, 2013, pp. 99–115.

403c: Navigating Change: Partnerships in Online Assessment Re-Design

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Teaching and Learning Centres are often uniquely positioned within institutions as a community of academic support. Although the practices and purposes vary, key values and roles include contributing to the development of teaching, learning, and scholarship within the university, and supporting evidence-based teaching that promotes student learning (Forgie, Yonge, & Luth, 2018; Laskar, 2021; Popovic & Baume, 2016).

During the 2020-2021 academic year, Wilfrid Laurier University conducted a comprehensive review of AI-driven remote proctoring solutions that considered privacy, equity, and assessment quality concerns. Following the results of the review, the Wilfrid Laurier University announced its decision to transition away from AI-driven proctoring beginning in the fall 2021 academic term.

To guide faculty with online courses impacted by this change (Grupp & Little, 2019), Teaching and Learning established a team involving an Instructional Designer and Educational Developer. Together, we initiated a collaborative, productive, and intentional approach to support instructors in defining, planning, and re-designing sustainable assessments for their courses (Boud & Soler, 2016). Important considerations in our work include acknowledging the challenges of assessment change (Deneen & Boud, 2014; Joughin, Dawson, & Boud, 2017) and maintaining academic integrity (Holden, Norris, & Kuhlmeier, 2021).

With the goal of improving assessment activities, supporting student learning, and enhancing teaching excellence, we navigated uncertainties, engaged in ongoing dialogue with faculty, offered academic and peer support, and encouraged instructors to consider the notion of engagement and authentic assessments in alignment with course objectives and learning outcomes (Biggs, 1996; Conrad & Openo, 2018).

Drawing on our collective and interconnected practices, our presentation contextualizes our approach to the work, sharing experiences, insights, strategies, and successes. We unpack some of the limitations, enduring challenges, and lessons learned in supporting faculty assessment re-design. Additionally, we examine dimensions of the diverse roles we negotiate and assume working in partnership with educators.

Learning Outcomes:

- Describe the varying roles and responsibilities of academic support professionals in response to institutional change.
- Discuss the opportunities and challenges of online assessment re-design.
- Promote student learning while examining concerns related to academic integrity in online modes of assessment.

Takeaways:

- Teaching and Learning centres can support faculty impacted by institutional change through novel working relationships.
- A flexible and relationship building approach can inspire interest and lead to positive outcomes.

References:

- Biggs, J. (1996). Enhancing teaching through constructive alignment. Higher Education, 32(3), pp. 347-364.
- Boud, D. and Soler, R. (2016). Sustainable assessment revisited. Assessment & Evaluation in Higher Education, 41(3), pp. 400-413.
- Conrad, D. and Openo, J. (2018). Strategies for online learning: Engagement and authenticity. Edmonton, AB: AU Press.

- Deneen, C. and Boud, D. (2014). Patterns of resistance in managing assessment change. Assessment & Evaluation in Higher Education, 39(5), pp. 577-591.
- Forgie, S., Yonge, O., and Luth, R. (2018). Centres for teaching and learning across Canada: What's going on? The Canadian Journal for the Scholarship of Teaching and Learning, 9(1), pp. 1-18.
- Grupp, L, and Little, D. (2019). Finding a fulcrum: Positioning ourselves to leverage change. To Improve the Academy, 38(1), pp. 95-110.
- Holden, O., Norris, M., and Kuhlmeier, V. (2021, July). Academic integrity in online assessment: A research review. Frontiers in Education, 6, pp. 1-13.
- Joughin, G., Dawson, P., and Boud, D. (2017). Improving assessment tasks through addressing our unconscious limits to change. Assessment & Evaluation in Higher Education, 42(8), pp. 1221-1232.
- Laskar, B. (2021). Continued growth, increasing complexity: Examining the evolving role of the Canadian educational developer. Canadian Journal of Higher Education, 51(3), pp. 1-12.
- Popovic, C., and Baume, D. (2016). Introduction: Some issues in academic development. In D. Baume and C. Popovic (Eds.), Advancing practice in academic development (pp. 1-16). Routledge.

Session 404: Presentations

404a: A Model for Incorporating Stakeholder Interactions in the Classroom

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The incorporation of stakeholder (i.e., user) insight and information important in many disciplines. It is a particularly important part of an iterative, user-centered engineering design process. The iterative design process is a user-centered design process where stakeholders are involved in the information gathering phase, and ideally through phases of the design process like ideation, prototyping, testing, and others. While value is seen in these stakeholder interactions during the design process [1,2], most student and course-level research on stakeholder interactions in engineering design courses focus on upper year design courses [3-5]. There is a lack of research on course frameworks for stakeholder interactions and the impact and value of these realistic stakeholder interactions in first-year design courses.

This research presents a course-based framework for integrating stakeholder interaction in first-year design courses in the Systems Design Engineering Department and presents a preliminary assessment of the impact and value of these interaction in first-year design courses measured through coursework and surveys at the beginning and end of the semester. To acknowledge the time, expertise and lived experience, stakeholders were financially remunerated and given flexibility in timing and manner of participation whenever possible. This was done with two goals in mind: (1) building sustainable relationships and networks and (2) engaging with stakeholders in an inclusive and user-focused manner that compensates them appropriately for their time [6-8]. Students indicated high perceived value in stakeholder interactions with 60% of respondents identifying 'users and stakeholders' as the most or second most important information source. Instructors could observe students' integration of stakeholder insight into their design work through design decisions and presentations. Some student survey responses suggest incorrect mindsets regarding using stakeholder feedback like justifying choices without changing the team's decisions. Preliminary results are encouraging, and we intend to explore opportunities for (1) expanding these types of interactions in other courses, departments, and years of study, (2) analyzing their impact on student learning, and (3) delving deeper into how to establish equitable actions around stakeholder compensation and collaborations.

Takeaways:

- Understand the importance of stakeholder interactions in engineering design skill development starting in the first year.
- Appreciate the need for equitable inclusion of stakeholders into design courses.
- Evaluate how the course framework for stakeholder interactions could apply to their own courses.

References:

[1] C.L. Dym, P. Little, and E.J. Orwin, Engineering Design: A Project-Based Approach, 4th edition. John Wiley & Sons, Inc., 2014.

[2] B. Martin and B. Hanington, Universal Methods of Design, Rockport Publishers, 2012.

[3] I. Mohedas, K.H. Sienko, S.R. Daly, and G.L. Cravens, "Students' perceptions of the value of stakeholder engagement during engineering design," Journal of Engineering Education, vol. 109, no. 4, pp. 760-779, 2020.

[4] S. Ludi, "Introducing accessibility requirements through external stakeholder utilization in an undergraduate requirements engineering course," In Proceedings of the 29th International Conference on Software Engineering, 2007, pp. 736 – 743.

[5] J. Quesada, I. Calvo, J. Sancho, R. Sebastián, and M. Castro, "A design-oriented engineering course involving interactions with stakeholders," IEEE Transactions on Education, vol. 63, no. 4, pp. 283 – 290, 2020.

[6] D.P. Richards, I. Jordan, K. Strain, Z. Press, "Patient partner compensation in research and healthcare: the patient perspective on why and how," Patient Experience Journal, vol. 5, no. 3, article 2, 2018.

[7] K.M. Beck, "Academic research decision making processes for research participant compensation," Thesis – University of Iowa, 2019. doi.org/10.17077/etd.237z-qqfs.

[8] J. Arkind, S. Likumahuwa-Ackman, N. Warren, K. Dickerson, L. Robbins, K. Norman, J.E. DeVoe, "Lessons learned from developing a patient engagement panel: An OCHIN report," JABFM, vol. 28, no. 5, pp. 632 – 638, 2015.

404b: WE Accelerate: Considering a New Type of Industry Partnership in the Delivery of an Innovative Work-Integrated Learning (WIL) Program

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

Suman Armitage, Co-operative Education, University of Waterloo

Andrea Prier, Work-Integrated Learning Programs, University of Waterloo

This session will examine the industry partnerships that support the design and delivery of an innovative work-integrated learning (WIL) program for unemployed first work term students at the University of Waterloo. Waterloo Experience (WE) Accelerate provides these students with future-ready, in-demand skills (Pretti, Etmanski, & Drewery, 2021) relevant to a wide range of sectors and industries.

The program combines 160 hours of career and skills training co-created with industry partners and 120 hours of an interdisciplinary, team-based project experience. The University researched and analyzed text from over 71,000 co-op job descriptions to determine the skills commonly sought by employers, and the industry partners were strategically chosen to address these employer priorities. The program follows the AAA* WIL quality framework (McRae, Pretti, & Church, 2018) to include pedagogy, experience, assessment, and reflection (P.E.A.R.).

The session will survey the six "streams" of content created for the initial offering of WE Accelerate. While each stream was delivered in partnership with industry, these streams varied with respect to the included level of synchronous engagement, student proximity to the partner, the technical difficulty associated with the skills content, and the assessment framework within each stream. These variations between streams reflected the partners' internal approaches to skill development and the nature of the relationship with each partner, including frequency of communication, inclusion of staff involved in operations, and understanding of program parameters.

Participants will leave this session with an understanding of what we learned through offering WE Accelerate about communication, clarity of purpose, operational needs, and appropriate levels of involvement for both staff and senior leadership within institutions and partners. These learnings align with WIL literature (Fleming, McLachlan, & Pretti, 2018) and support the development of strong partnerships with industry and community partners across a wide range of WIL types and contexts.

Takeaways:

- Industry partners have widely varying internal approaches to skill development, and it takes dedicated and thoughtful instructional design to fit those approaches to skill development into a framework that feels coherent for learners and staff responsible for operation.
- The quality of each stream of WE Accelerate was directly associated with factors like the level of synchronous engagement, student proximity to the partner, the technical difficulty of the content, and the assessment framework within the stream. The factors were representative of the working relationship established with each industry partner.
- Running the WE Accelerate for two terms has yielded a set of best practices for future partner engagement, including setting clear expectations; allowing plenty of time for development and iteration; creating direct connections between staff (i.e., operations, instructional designers) and point people within the partner; and regular communication to overcome roadblocks and misunderstandings. These best practices align with WIL literature.

References:

- Fleming, J., McLachlan, K., & Pretti, T.J. (2018). Successful work-integrated learning relationships: A framework for sustainability. International Journal of Work-Integrated Learning, 19(4), 321-335

- McRae, N., Pretti, T.J., & Church, D. (2018). Work-integrated learning quality framework, AAA*.
- Pretti, T.J., Etmanski, B., & Drewery, D. (2021). Development and validation of a future ready talent framework. International Journal of Work-Integrated Learning, 22(3), 369-383.

404c: PARTNERS IN DESIGN - Involving all Stakeholders in the Restructuring Process of an Online Course

Petra Menz, Simon Fraser University

Joanna Niezen, Simon Fraser University

Sophie Burrill, Simon Fraser University

Marion Moldovan, Simon Fraser University

Joanna Niezen, Simon Fraser University

Sheena Tan, Simon Fraser University

In an effort to improve student experiences in our online, asynchronous math-for-teachers course, all stakeholders in this course were invited to be partners in design: undergraduate students who had taken this course, graduate students in their roles as help centre tutors and graders, technical support staff, and three instructors with varying degrees of familiarity teaching this course.

The online course was created in the fall of 2013 through the LMS Canvas in asynchronous delivery mode with content supplied by the first author. With the advancement of technology, the material has been regularly fine-tuned incorporating lightboard video lectures and other multimedia resources to foster student engagement. However, as the course has grown, its structural complexity grew as well making navigation increasingly intricate. These issues hinder the learning and accessibility of the course.

After combining and organizing feedback, collected informally and via surveys, representatives from each stakeholder group met in January 2022 to decide on various design choices and map out a plan to improve the course layout. Undergraduate and graduate students contributed equally to this restructuring plan. Not only were the students' insights thoughtful, but their unique viewpoint was invaluable, leading the discussion as experts in user experience and ultimately guiding many design choices. The graduate-undergraduate student relationship that develops through the help centre was leveraged to speak to the common misconceptions that undergraduates face in this course. The various stakeholders will be consulted in early March 2022 with the goal of having the redesigned course go live in May 2022 for the summer semester.

In our presentation, you will hear from undergraduate and graduate students as well as two instructors about this process and its outcome thus far.

Takeaways:

- Through an inclusive approach, the viewpoints of our students and teaching assistants constructively impact course design, which ultimately leads to a richer, more accessible online learning experience.
- We will describe our process by highlighting our triumphs and pitfalls along the way, so that you can successfully implement a similar approach with your own courses.

References:

- Flynn, A. (22.05.2020). Let's get more students to the decision-making tables in higher education. University Affairs, https://www.universityaffairs.ca/opinion/in-my-opinion/lets-get-more-students-to-the-decision-making-tables-in-higher-education/
- Graham, C., Cagiltay, K., Lim, B. R., Craner, J., & Duffy, T. M. (2001). Seven principles of effective teaching: A practical lens for evaluating online courses. The Technology Source, 30(5), 50.
- Hegeman, J. S. (2015). Using instructor-generated video lectures in online mathematics courses improves student learning. Online Learning, 19(3), 70-87.
- Robinson, C. C., & Hullinger, H. (2008). New benchmarks in higher education: Student engagement in online learning. Journal of Education for Business, 84(2), 101-109.

Session 405: Panel Discussion - The Digital Media Intern Program- An Opportunity for Students as Partners and Experts in Educational Technology

Justin Rao, Western University

Priya Modi, Western University

Eastelle Ding, Western University

Sarah McLean, Western University

As noted by American author Jerry Blumengarten, "Tech gives the quietest student a voice". Beyond giving them a voice, we can further empower our students when we give them the opportunity to shape and create technology-enhanced education through collaboration and partnership. The digital media intern (DMI) program at the Schulich School of Medicine and Dentistry (SSMD) empowers learners by providing an innovative paid internship program with the overall goal of creating the best educational experience for students and faculty. The digital media intern program was begun to support faculty in rapidly moving their courses online in summer 2020. It has now expanded to become a year-round program that provides just-in-time tech support as well as student-informed course resources and learning management system set-up. This program works with the "ethic of reciprocity" outlined by Cook-Sather and Felten (2017), in that both faculty and DMIs provide a balanced give-and-take of contributions- mentorship, guidance, technical skills, and insights.

In this panel session, the faculty lead of the DMI program will walk through the ongoing iterative process of the program, the theoretical underpinnings of the program, and how it has adapted to meet learner and faculty needs. Three current DMIs will share their experiences of working in the program, and will also highlight their main takeaways and how the student-faculty partnership has influenced their learning and skill development. This session links directly to the program themes of student partners in design and responsive partnerships. By the end of this session, participants will be able to describe the successful elements of the DMI program, intern perspectives from participating in such a program and map out ways in which a similar program may be implemented in their own institution

Takeaways:

- Outline the theoretical and practical considerations that make a program like the digital media intern program successful.
- Describe the experience and benefits from a student perspective of being involved in this program.

References:

- Cook-Sather, A., Bovill, C. & Felten, P. (2014) Engaging students as partners in learning and teaching: a guide for faculty. San Francisco: Jossey Bass.

Session 406: Panel Discussion - Universal Design for Learning and Student Wellbeing: Partnerships for a Whole Systems Approach

Melissa Potwarka, Campus Wellness, University of Waterloo

Jillian Watkins, Campus Wellness, University of Waterloo

Christine Zaza, Centre for Extended Learning, University of Waterloo

Zara Rafferty, Rec & Leisure Studies, University of Waterloo

Trevor Holmes, Centre for Teaching Excellence, University of Waterloo

Veronica Stephenson, Centre for Teaching Excellence, University of Waterloo

The University of Waterloo (UW) adopted the Okanagan Charter in 2018, which committed to embedding wellbeing into learning environments (Okanagan Charter, 2015). In response, UW Wellness Collaborative underwent consultation with academic support units and senior leaders to identify areas within the learning environment where student wellbeing could be meaningfully addressed; Universal Design for Learning (UDL) emerged as a salient mechanism for doing so. UDL confronts systems that place individuals with disabilities on the margins, thus creating learning environments that are responsive to the broadest range of learners (Dolmage, 2017). By centering on the needs of learners, UDL supports diversity in the classroom, a key determinant of student wellbeing (Fovet, 2020; Nieminen & Pesonen, 2020). UDL offers instructors three dimensions for reflecting on how their teaching practices impact student wellbeing by reducing barriers and increasing access through: 1) multiple means of representation, 2) multiple means of action and expression, and 3) multiple means of engagement (Fovet, 2020; Dalton, 2017). A systems approach, with strong, active cross-disciplinary partnerships across all levels of the institution, is needed to address wellbeing and support a culture of inclusive excellence in higher education. To this end, the Wellness Collaborative has begun to form partnerships with a variety of campus partners including Campus Wellness, Centre for Extended Learning, Centre for Teaching Excellence and instructors to enhance capacity for UDL that fosters wellbeing in the learning environment.

This panel session includes faculty and academic support staff. Participants will hear from panel members about: how they support and/or utilize UDL practices in their role; challenges and opportunities for implementation of UDL in academic polices and learning environments; and the intersections of panel members' work with wellbeing, inclusivity, and the Okanagan Charter. Participants will have the opportunity to engage in discussion with panel members and learn about future opportunities emerging from these partnerships.

Takeaways:

- Understanding of Universal Design for Learning, its underlying principles and dimensions of engagement, and its application in the learning environment at Waterloo.
- Understanding of how Universal Design for Learning can be harnessed to support wellbeing in the learning environment.
- Awareness of opportunities at Waterloo to participate and contribute to institution-wide efforts for building capacity and community around Universal Design for Learning.

References:

- Dalton, E. M. (2017). Beyond Universal Design for Learning: Guiding Principles to Reduce Barriers to Digital & Media Literacy Competence. Journal of Media Literacy Education, 9(2), 17–29. https://doi.org/10.23860/JMLE-2019-09-02-02
- Dolmage, J. T. (2017). Academic Ableism. Academic Ableism. https://doi.org/10.3998/MPUB.9708722

- Fovet, F. (2020). Exploring the Potential of Universal Design for Learning with Regards to Mental Health Issues in Higher Education. Pacific Rim International Conference on Disability & Diversity, July, 0–16. https://www.researchgate.net/publication/343107490_Fovet_Frederic_Exploring_the_Potential_of_Universal_Design_for_Learning_with_Regards_to_Mental_Health_Issues_in_Higher_Education_2020_Pacific_Rim_International_Conference_on_Disability_Diversity_Proce
- Nieminen, J. H., & Pesonen, H. (2020). Taking universal design back to its roots: Perspectives on accessibility and identity in undergraduate mathematics. Education Sciences, 10(12), 1–22. https://doi.org/10.3390/educsci10010012
- Okanagan Charter: An International Charter for Health Promoting Universities and Colleges. (2015). https://open.library.ubc.ca/cIRcle/collections/53926/items/1.0132754

Session 407: Workshop - Partners in Failure, Partners in Learning: Modeling Failure Intervention Pedagogy in the University Classroom

Jennifer N. Ross, University of Toronto

Esther Baffour, University of Toronto Mississauga

Pooja Dey, University of Toronto Mississauga

Yasmin Abdellatiff, University of Toronto Mississauga

Nicole Laliberte, University of Toronto Mississauga

Fiona Rawle, University of Toronto Mississauga

The Failure: Learning in Progress (FLIP) project forges partnerships across institutional rank and discipline to examine power and privilege in university teaching and learning. From the creation of data sets to analysis and publication, the project foregrounds students as partners in research and expertise. Together, undergraduate researchers, postdocs, and faculty collaborate to identify intersecting vectors of power, privilege, learning, and failure in academe. Through these collaborations, the FLIP team engages in a co-production of knowledge that equips students with the language and theoretical frameworks to understand their lived experiences of power, while student insights guide the research and shape the conclusions drawn from it.

This workshop aims to (1) complicate definitions of academic failure and success, (2) clarify the role of power and privilege in student experiences of failure, and (3) introduce participants to one mode of failure pedagogy. The workshop begins with a brief review of perceptions of failure in educational and SoTL research, followed by an overview of the FLIP project. Participants then gather in small groups to engage with one module from the failure interventions encountered by students in FLIP courses. What is power? Privilege? How do these forces influence one's ability or willingness to take risks? How do these forces shape one's ability to bounce back from failure or try again? After discussion, student partners describe their findings from qualitative analysis of pre- and post- intervention surveys. The workshop concludes by describing how student feedback has informed the revision of intervention activities for greater accessibility and effect.

Ultimately, workshop participants will learn how to facilitate discussion around and shift perceptions toward the role of failure in teaching and learning. It is our hope that participants will be able to empower their teaching with an approach that embraces, rather than forecloses, the messiness of learning in all its forms.

Takeaways:

- This workshop models one example of failure intervention pedagogy.
- Workshop participants will learn how to facilitate discussion around and shift perceptions toward the role of failure in teaching and learning.

References:

- Bjork, R. A., & Bjork, E. L. (2020). Desirable difficulties in theory and practice. Journal of Applied Research in Memory and Cognition, 9(4), 475-479. https://doi.org/10.1016/j.jarmac.2020.09.003
- Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. Psychology and the real world: Essays illustrating fundamental contributions to society, 2(59-68).
- Feigenbaum, P. (2021). Telling students it's O.K. to fail, but showing them it isn't. Dissonant paradigms of failure in higher education. Teaching & Learning Inquiry 9(1), 13-27. http://dx.doi.org/10.20343/teachlearninqu
- Hallmark, T. (2018). When "failure is ok" is not ok. The Chronicle of Higher Education 64(23), A44.

- Henry, M., Shorter, S., Charkoudian, L., Heemstra, J., and Corwin, L. FAIL is not a four-letter word: A theoretical framework for exploring undergraduate students' approaches to academic challenge and responses to failure in STEM learning environments. CBE Life Sciences Education, 18(1). https://doi.org/10.1187/cbe.18-06-0108
- Jungic, V., Creelman, D., Bigelow, A., Côté, E., Harris, S., Joordens, S., … & Yoon, J. S. (2020). Experiencing failure in the classroom and across the university. International Journal for Academic Development, 25(1), 31-42
- Kapur, M. (2008). Productive failure. Cognition and Instruction 26(3), 379-425. https://doi.org/10.1080/07370000802212669
- ---. (2015). Learning from Productive Failure. Learning: Research and Practice 1(15), 51–65. http://dx.doi.org/10.1080/23735082.2015.1002195
- ---. (2016). Examining productive failure, productive success, unproductive failure, and unproductive success in learning. Educational Psychologist 51(2), 289-299. https://doi.org/10.1080/00461520.2016.1155457
- Neff, K. D., Hsieh, Y. P., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. Self and Identity 4(3), 263–287. https://doi.org/10.1080/13576500444000317
- Steuer, G. and Dresel, M. (2015). A constructive error climate as an element of effective learning environments. Psychological Test and Assessment Modeling 57(2), 262-275.
- Yeager, D., Purdie-Vaughns, V., Garcia, J., Apfel, N., Brzustoski, P., Master, A., Hessert, W., Williams, M., and Cohen, G. (2014). Breaking the cycle of mistrust: Wise interventions to provide critical feedback across the racial divide. Journal of Experimental Psychology 143(2), 804-824. https://doi.org/10.1037/a0033906

Poster and Showcase Sessions Thursday, April 28 (1:45pm-2:15pm ET)

Poster Presentations

Perceived Teaching Effectiveness in Online Versus Classroom Contexts

Shona Tritt, University of Toronto Scarborough

William Cunningham, University of Toronto Scarborough

Online versions of courses are increasingly offered by universities and undertaken by students. The COVID-19 pandemic has hastened this transition, leading to a sudden dramatic shift towards online course delivery. Despite the widespread use and swift increase in engagement with online courses, little consensus has been reached as to how online contexts affect perceptions of teaching effectiveness. Van Wart et al. (2019) found that students tended to evaluate instructors who taught them online (as opposed to face-to-face) more negatively. No study to date has explored whether class size moderates this relationship. This is an important area of inquiry because past research has found that students tend to perceive less teaching effectiveness in larger versus smaller classes (e.g., Carbone, 1999). We examined whether instruction type might moderate this effect. Our study directly compares the teaching evaluations of courses offered as web-options and as in-person classes simultaneously in a large sample of 87 classes offered through the faculty of arts & science at the University of Toronto. This allowed for a relatively controlled experiment, comparing student ratings of the exact same courses, taught by the same professors, in the same way, and in the same time-frame/historical context. The only variable that differed was the way in which students engaged with the course: online versus in-person. We did not find an effect of differences in perceived teaching effectiveness in online versus in-person contexts. We did find an effect whereby larger versus smaller classes elicited lower teaching evaluations. This effect was moderated by whether the class was taken as a web-option, or through the traditional in-class format. The results of our study suggest that in relatively smaller classes, teaching may be perceived as more effective in in-person versus online contexts, whereas in relatively larger classes, teaching may be perceived as more effective when engaged online versus in-person.

Takeaways:

- In relatively smaller classes, teaching may be perceived to be more effective in-person versus online contexts.
- In relatively larger classes, teaching may be perceived to be more effective when engaged online versus in-person.

References:

- Carbone, E. (1999). Students behaving badly in large classes. In S. Richardson (Ed.), Promoting civility: A teaching challenge. *New Directions for Teaching and Learning, 77.* San Francisco: Jossey-Bass.
- Van Wart, M., Ni, A., Rose, L., McWeeney, T., & Worrell, R. (2019). A Literature Review and Model of Online Teaching Effectiveness Integrating Concerns for Learning Achievement, Student Satisfaction, Faculty Satisfaction, and Institutional Results. *Pan-Pacific Journal of Business Research*, 10(1), pp. 1-22.

Experiential Learning Design Element in Venture Creation Course with Campus-Wide Unit on Problem Space Research

Wayne Chang, Conrad School, University of Waterloo

Larry Smith, Problem Lab, University of Waterloo

Ben Graham, Problem Lab, University of Waterloo

Madison Smyth, Problem Lab, University of Waterloo

Christine Moffatt, Problem Lab, University of Waterloo

This presentation describes a practice-based approach for an undergraduate upper year venture creation course open to students from all faculties who are developing their individual venture or not-for-profit idea. It represents a successful worked example of adapting and embedding an extra-curricular program into a curricular one. The course is taught in an experiential learning environment [1] and designed with key partnership with a campus-wide extra-curricular non-academic unit which specializes in problem space research and methodology and is part of the University innovation ecosystem. This unit is open each term year-round to all faculties and programs to support students developing research skills specifically around problem spaces, and not only for new venture ideas   Students learn foundationally within the first month of the course to answer core question "Which one of our customer's problems are we helping to solve?" [2] through a structured research method and staffed by dedicated Researcher Student Advisors (RSA) who meet for consultation sessions weekly with each student or student team outside of the scheduled weekly class synchronous lecture time period. This asynchronous component for 1-1 meetings provides flexible scheduling. This campus-wide unit runs a structured extra-curricula program for students to research important problem spaces supported by series of training workshops and culminates by end of the term in a pitch presentation competition. This program was identified to align with the venture creation course timeline and learning objectives around problem spaces and creating new products or solutions for such spaces and was designed in as a learning module for the course. The student's 1-1 sessions with staff RSA's are high-value learning sessions contextualized for each problem space being studied. This has translated to students positive feedback comments at the end of each term course evaluations recognizing the expertise and resources available to support their entrepreneurship education.

Takeaways:

- Problem space research methodology is a student-led experiential learning first module of a venture creation course.
- Problem Lab resources are available each term year-round for instructors and represents one strategy for incorporating problem finding within courses.
- Problem space research methodology can be implemented at a course-level, programmatic level, introductory or upper-year courses, and supports the conference theme for Partnerships with support units campus-wide.

References:

[1] Kolb D. (2014). Experiential Learning: Experience as the Source of Learning and Development, 2nd edition, Pearson Publishing.

[2] Osterwalder A. (2010). Section 1.2.1, Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. J. Wiley & Sons.

Adopting the SLICC Model to Independent Study Credits for Health Science Students *

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

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

SLICCs are student-led, individually created courses that were initially developed at the University of Edinburgh (Bovill et al., 2016; Healey et al., 2014). The premise of SLICCs is to foster and promote 'students as partners' in their educational experience (Healey et al., 2014). These educational partnerships extend beyond just the student and the faculty member, and have the potential to foster partnerships between students and their peers, as well as students and their profession (Healey et al., 2014). However, SLICCs do not need to incorporate each level of partnership, but instead might only focus on one type of partnership. Further, SLICCs may not need to be developed as new courses, nor require the complete overhaul of existing courses; rather, elements of SLICCs can be adopted into existing courses. For example, SLICC elements can be readily incorporated into an upper year independent study credit for Health Sciences students' course.

Independent study courses can be an ideal practice space for both the student and the faculty member to implement some elements of SLICCs. These courses are typically for upper year students, are elective credits (i.e., not required), have manageable enrollment sizes, exist across multiple disciplines, and are inherently flexible by design. In fact, the 5 SLICC learning outcomes (analysis, application, recognizing and developing skills, recognizing and developing mindsets, and evaluation), semi-structured schedule, and reflective learning (Spiers et al., 2017) allow both the student and the faculty member to create a customized and meaningful learning experience. These outcomes allow students to take ownership of their learning journey and focus on developing skills that will be applicable to our changing world. This proposal outlines how SLICC elements were implemented into an upper year independent study credit for Health Science students.

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

- Describe the SLICCs model of teaching by identifying key elements and learning outcomes.
- Consider different ways to implement SLICC elements into pre-existing courses.
- Apply their understanding of SLICCs by adopting pre-existing courses into the SLICC model.

Takeaways:

- SLICCs are student-led, individually created courses.
- SLICC elements can be incorporated into existing courses.
- SLICCs elements can be implemented at a course-level, programmatic level, introductory or upper-year courses, but in an initial attempt may be ideal for small upper-level courses.

References:

- Bovill, C., Cook-Sather, A., Felten, P., Millard, L., and Moore-Cherry, N. (2016). Addressing potential challenges in co-creating learning and teaching: overcoming resistance, navigating institutional norms and ensuring inclusivity in student-staff partnerships, Higher Education, 71, 195–208
- Healey, M., Flint, A., and Harrington, K. (2014). Engagement through partnership: Students as partners in learning and teaching in higher education. York, UK. Higher Education Academy.
- Speirs, NM, Riley, SC & Mccabe, G (2017). 'Student-Led, Individually-Created Courses: Using Structured Reflection within Experiential Learning to Enable Widening Participation Students? Transitions Through and Beyond Higher Education', Journal of Perspectives in Applied Academic Practice, vol. 5, no. 2. https://doi.org/10.14297/jpaap.v5i2.274

Evaluating a New Student-Centric Experiential Learning Approach for Entrepreneurship Education: The Impact of SLICCs (Student-Led Individually-Created Courses) on Student Learning Outcomes *

Wayne Chang, Conrad School, University of Waterloo

Brendan Wylie-Toal, KidsAbility

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

A recent theme in entrepreneurship education is to distinguish between teaching about entrepreneurship (ex: business fundamentals) from teaching for entrepreneurship (ex: skills and competencies). While the benefits of teaching the skills, attributes, and behaviours of successful entrepreneurs are well understood, it is less well understood how to create teaching and learning environments that generate such outcomes. Our research evaluated the attributes of the Student-Led Independently Created Course (SLICC) teaching model [1]. Developed at University of Edinburgh, SLICCs promote student ownership of their learning by allowing students to co-create their learning experience, leading to deeper engagement. Experiential learning [2] in the form of the SLICC framework helps students identify and articulate their growth and development resulting from the experience and improves their ability to self-assess. We used qualitative methods to 1) develop a better understanding of the general impressions of the SLICCs model from the perspectives of both students and faculty, and 2) to assess and track improvements in lifelong learning mindsets of students. A collaborative partnership with the Centre for Teaching Excellence and between two undergraduate entrepreneurship courses from different faculties piloted the SLICC teaching model, and interviews were conducted with students and instructors of each pilot. Interviews indicated that one of the main successes of the SLICC model was its flexibility and ability to solidify students' comprehension of the content. The main challenges were: 1) the reflection component, as students struggled with how to address the writing prompts; and 2) students' comprehension of the SLICC, as students would like to have a deeper understanding of the purpose and logistics of the SLICC from an earlier point in the course.

Takeaways:

- SLICC acronym student-led, individually created courses.
- Teaching with SLICC approach is student-centred learning process.
- SLICC framework can be designed into existing or new courses or at program level.

References:

[1] Speirs, NM, Riley, SC & Mccabe, G (2017). 'Student-Led, Individually-Created Courses: Using Structured Reflection within Experiential Learning to Enable Widening Participation Students? Transitions Through and Beyond Higher Education', Journal of Perspectives in Applied Academic Practice, vol. 5, no. 2. https://doi.org/10.14297/jpaap.v5i2.274

[2] Kolb, D (2014). Experiential Learning: Experience as the Source of Learning and Development, 2nd edition, Pearson Publishing.

Examining the Inter-University Partnership of an M.Ed. Joint Degree Program through the Lens of the Interagency Arrangements Model

Robert A. LeGary Jr., Goodwin University

The purpose of this presentation is to describe the interagency partnership of a Master of Education (M.Ed.) Joint Degree Program between two Connecticut, U.S.A., universities using the lens of the Interagency Arrangements Model (Intriligator, 1992). Participants will gain insights the design components—policy, structures, and personnel—that necessary to support the development and implementation of an interuniversity partnership. The administrations at these two universities (a university consortium) decided that both universities would benefit with an M.Ed. joint degree program. One university has expertise in Universal Design for Learning (UDL) as its official pedagogical approach while the other has a reputable, well-established public-school outreach and quality graduate programs in education and teacher preparation. With the best of both universities, this novel, cohort-based M.Ed. joint degree program is fully online with synchronous and asynchronous learning for early career pre-K through 12 certified teachers.

This presentation will focus on the analysis of the M.Ed. joint degree program and the interuniversity partnership arrangement to describe the variables and components that characterize a collaborative and inclusive relationship with the aim of establishing an M.Ed. joint degree program. The Interagency Arrangements Model (Intriligator, 1992; Ray, 2002) provides a comprehensive framework for examining the interdependence among two universities in the design, development, and implementation of a joint, interagency M.Ed. program between two Northeast universities.

During this presentation, it will become evident that collaborative structures and relationships, which are durable, long-term, and complex, are necessary for the success and sustainability of this M.Ed. joint degree program. The findings indicated variable levels of cooperation, coordination, and collaboration of this inter-university partnership with the development and implementation of a joint graduate degree program (Kaiser, 2011; Mattesich & Johnson, 2018). Furthermore, this interuniversity arrangement has developed durable and formal collaborative structures related to curricular, instructional, and student support components.

Takeaways:

- Gain insights into the design components--policy, structures, and personnel—that are necessary to support the development and implementation of an interuniversity partnership.
- Recognize the importance of sharing resources, leading the effort, creating relationships, and developing trust strengthen interuniversity partnerships and promote inclusivity.
- Identify the strategies and tactics for building effective collaborative interuniversity partnerships that positively impact teaching and learning.

References:

- Intriligator, B. (1992, April 20-24). *Establishing interorganizational structures that facilitate school success* [Paper Presentation]. American Educational Research Association Annual Meeting, San Francisco, CA.
- Kaiser, F.M. (2011). *Interagency collaborative arrangements and activities: Types, rationales, considerations* (7-5700). Congressional Research Service.
- Mattessich, P.W., & Johnson, K.M. (2018). *Collaboration: What makes it work* (3rd ed.). Amherst H. Wilder Foundation.
- Ray, K. (2002). *The nimble collaboration: Fine-tuning your collaboration for long lasting success.* Amherst H. Wilder Foundation.

Student Partners in the Learning Process - Integrating Elements of the SLICC Model into the MPH Capstone Course

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

This proposal outlines how the Student-Led Independently Created Courses Model (SLICC) model will be incorporated into the MPH Capstone course. The model developed by University of Edinburgh, promotes student learning by empowering students to identify learning outcomes to suit their interests and goals which results in deeper engagement in the learning process (Bovill et al. 2016; Healey et al., 2014). The model incorporates students' reflection of their experiences throughout their learning journey which has been reported to result in better articulation of their growth and development, in addition to their ability to assess themselves (Price et al., 2012).

In the culminating course of the MPH, students are partners in the learning process by selecting a project of interest to them and preparing a useful product for a public health client. In this course, elements of the SLICC model will be integrated. The Capstone course requires students to prepare an overview of their project as part of an e-portfolio that they develop in Pebblepad. To integrate the SLICC model, students will also be asked to identify three learning outcomes they hope to achieve related to analysis, application and self-evaluation and then to consider how these will contribute and align with the group's deliverable. The SLICC model will encourage students to take ownership for their learning by asking them to reflect on what they need to do to be successful. Formative feedback will be provided on the project deliverables by peers and the course instructor. Students will then reflect on the feedback received and indicate how they will further develop to contribute to the project. The integration of student reflection will help students understand and articulate their growth and development as they complete their capstone project.

By the end of this poster presentation, attendees will:
- Have greater awareness of the student-led independently created courses

(SLICC) model
- Understand how SLICCs have been integrated into existing graduate-level

Capstone courses
- Consider different ways to evolve the SLICC model

Takeaways:

- One model that involves student partnership in the learning process is called student lead individually created courses (SLICC).
- SLICCs can be integrated into existing graduate-level Capstone courses.
- Adaptations to the SLICC model will be identified for the MPH Capstone course.

References:

- Bovill, C., Cook-Sather, A., Felten, P., Millard, L., and Moore-Cherry, N. (2016). Addressing potential challenges in co-creating learning and teaching: overcoming resistance, navigating institutional norms and ensuring inclusivity in student-staff partnerships, Higher Education, 71, 195–208.
- Healey, M., Flint, A., and Harrington, K. (2014). Engagement through partnership: Students as partners in learning and teaching in higher education. York, UK. Higher Education Academy.
- Price, M., Rust, C., O'Donovan, B., Handley, K., and Bryant, R. (2012) Assessment literacy: The foundation for improving student learning, Oxford, UK. Oxford Centre for Staff and Learning Development.

MathSoc Cartoons: A Creative Partnership Between Math Students and Faculty of the University of Waterloo

Gavin Orok, Math, University of Waterloo

MathSoc Cartoons is an educational comic series developed by students at the University of Waterloo. Its cartoons provide high-level visual and verbal explanations that motivate technical math concepts as a supplement to traditional lectures and course notes. So far the project has run for about two years, producing 33 comics to date for a variety of UW math courses.

Math is notorious for being a problem concept in school because many students see it as confusing, highly abstract, and boring. To help combat this perception of the subject, MathSoc Cartoons attempts to give simple overviews of difficult concepts, demystify the theory with relevant applications and analogies, and incorporate colourful artwork and fun characters to make the material engaging. The style of resources in this project may also be useful for motivating abstract concepts from other technical disciplines such as chemistry and physics.

The partnership in pedagogy seen in this project is formed between students and professors, who have different strengths that make the resources more effective. The bulk of the creative writing and art is produced by students, who use their understanding of their peers to design explanations that incorporate engaging stories and artwork. Professors provide feedback on the work to ensure the material meets the rigour expected from postsecondary instruction. Many professors appreciate having additional resources to share with their classes, and students appreciate having opportunities to help educate their peers and develop their creative skills.

This presentation will cover techniques used to make math comics engaging, example comics, and feedback received from students. Instructors will also learn about a strategy to implement comic-style resources in their classes.

Takeaways:

- Cartoons are suitable resources for motivating concepts and explaining them at a high level, as a supplement to course materials which cover them in depth.
- Students were able to develop engaging educational resources with supervision from professors to correct the presentation of technical concepts.
- Cartoon resources can be successfully implemented in classes by hiring students to work on the designs.

References:

Publications on similar projects from the University of Waterloo that produced educational cartoons for post-secondary math and computer science concepts:

- Garica, A. & Sellaroli, G. (2019, December 8). Cartoons for Undergraduate Mathematics [Conference presentation]. 2019 CMS Winter Meeting, Toronto, ON, Canada.
- Sangho Suh, Martinet Lee, Gracie Xia, Edith Law. Coding Strip: a pedagogical tool for teaching and learning programming concepts through comics. IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), 2020

[paper] [article]

- Sangho Suh. Promoting meaningful learning by supporting interplay within abstraction ladder. IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), 2020

[paper]

- Sangho Suh. Using concreteness fading to model and design learning process. Proceedings of the 2019 ACM Conference on International Computing Education Research (ICER), 2019.

References on math anxiety and using cartoons as educational resources:

- Jacobs, D. (2013). *Graphic encounters: Comics and the sponsorship of Multimodal Literacy*. Bloomsbury.
- Rycroft-Smith, L. (2017, May). *Maths anxiety*. Cambridge Mathematics. https://www.cambridgemaths.org/Images/espresso_6_maths_anxiety.pdf
- Şengül, Sare & Dereli, Mehtap. (2010). Does instruction of "Integers" subject with cartoons effect students' mathematics anxiety?. *Procedia - Social and Behavioral Sciences*. 2. 2176-2180. 10.1016/j.sbspro.2010.03.302.

Campus Partnerships for Student Sustainable Living Lab Projects

Heather McDiarmid, Sustainability Office, University of Waterloo

Mathew Thijssen, Sustainability Office, University of Waterloo

The University of Waterloo has a long tradition of using campus data and challenges to enhance student learning. Recently, the Sustainability Office joined a growing number of Universities (Riviera & Savage, 2020) in creating a formalized living lab program - partnering with campus operations and course instructors to develop student project proposals that can advance sustainability practices on campus while providing meaningful and engaging experiential learning experiences tied to the learning objectives of the course. Instructors and students will have the opportunity to use a variety of experiential learning techniques to address authentic, messy, and complex challenges while applying higher level learning practices and building systems-level understanding of societal challenges (Favaloro, Ball, Lipschutz, 2019). These projects are designed with the needs of our campus partners in mind, ensuring that there is the willingness and capacity to implement the resulting outcomes and recommendations, thereby helping the University to be a leader in building a sustainable society (Verhoef et al., 2019).

The Sustainability Office's program role is to build partnerships, develop proposals, provide access to resources, facilitate consultations between stakeholders, support implementation of project recommendations and outcomes, and build the instructional and institutional knowledge and skills needed to evolve the program toward larger and transdisciplinary work.

Recent living lab case studies of first year to graduate level projects in fields as diverse as systems thinking, ecology, communications, and behavioral science are presented. Also outlined are plans for transdisciplinary and multi-year projects.

We see the Sustainability Living Lab as a quadruple-win program: students get meaningful learning experiences with an enduring impact, instructors can enliven courses with higher level learning experiences, campus operations benefit from student expertise in designing and implementing new initiatives, and the work enhances the University of Waterloo's reputation for leadership in sustainability and experiential learning.

Takeaways:

- Living lab projects are an opportunity for students and instructors to use the campus as a test bed for addressing real life sustainability challenges related to their courses.
- Living lab projects are an opportunity for campus operations to draw on student knowledge and skills to address identified sustainability gaps.
- Student living lab projects have the potential to have an impact beyond the classroom and to help the university be a leader in sustainable operations.

References:

- Favaloro T, Ball T, Lipschutz RD. Mind the Gap! Developing the Campus as a Living Lab for Student Experiential Learning in Sustainability. In: Sustainability on University Campuses: Learning, Skills Building and Best Practices. Springer International Publishing; 2019:91-113. doi:10.1007/978-3-030-15864-4_7
- Rivera, C.J., Savage, C. Campuses as living labs for sustainability problem-solving: trends, triumphs, and traps. J Environ Stud Sci 10, 334–340 (2020). https://doi-org.proxy.lib.uwaterloo.ca/10.1007/s13412-020-00620-x
- Verhoef, L.A., Bossert, M., Newman, J., et al. Towards a Learning System for University Campuses as Living Labs for Sustainability. In: Universities as Living Labs for Sustainable Development. Springer International Publishing; 2019:135-149. doi:10.1007/978-3-030-15604-6_9

Teaching and Learning Showcases

Partnerships for Program Development: Students, Faculty, and Staff

Elise Vist, Writing and Communication Centre, University of Waterloo

Veronica Curran, University of Toronto, University of Waterloo

James Skidmore, Germanic & Slavic Studies, University of Waterloo

Grad students generally understand the importance of gaining communication skills, especially those that are relevant to careers in their discipline. They also likely have access to resources teaching them traditional forms of communication, such as journal articles, monographs, dissertations, conference presentations, etc., though they may be "cobbling together" these resources from multiple sources (Kelly & Head, 2017, par. 5).

Additionally, the relevant forms of communication are increasingly varied and multimodal, with expectations that differ across disciplines and genres (Trimbur, 2010). Students want instruction in these genres, that is specific to their disciplines both in and out of the academy. For example, although posters have long been a part of careers in the sciences, they have been largely absent from humanities communication until recently, and students likely have not had instruction in visual communication. Although academic support units like the University of Waterloo's Writing and Communication Centre (WCC) have communication and teaching expertise to create professional development programming integrating these genres, we cannot always offer the specific instruction graduate students need (Miron, 2022)

Therefore, when graduate student members of the scholarly association German Studies Canada along with the Waterloo Centre for German Studies (WCGS) were looking for professional development support, WCC was eager to assist. It gave the WCC an opportunity to work closely with faculty and students from a specific discipline to develop public resources that not only address students' current communication needs, but also set them up to use new genres effectively.

In this session, we will describe how German Studies Canada, the WCGS and WCC collaborated to select topics and create action-oriented online workshops available to grad students across Canada and developed trust and lines of communication for future collaborations that benefit all three parties.

Takeaways:

- The partnership between students, staff, and faculty enables the creation of programs that are grounded in student needs, communication theory and instruction, and discipline-specific requirements.
- Create trust and awareness of communication/teaching needs for future collaboration with a student-led approach.
- Resist boundaries of institution-only teaching to create more effective and long-lasting partnerships.

References:

- Kelly, C. L., & Head, K. (2017). An approach to serving faculty in the writing center. WLN: A Journal of Writing Center Scholarship, 41(9-10), 18+. https://link.gale.com/apps/doc/A492665029/AONE?u=uniwater&sid=bookmark-AONE&xid=e3574a58
- Lawrence, S. & Myers Zawacki, T. (Eds.) (2018). Re/Writing The Center: Approaches to Supporting Graduate Students in the Writing Center
- Miron, Layli Maria. "Tutors' Column: 'Graduate Writing Workshops: To Generalize or to Specialize'." WLN: A Journal of Writing Center Scholarship, vol. 46, no. 5-6, Jan.-Feb. 2022, pp. 27+. Gale Academic OneFile, link.gale.com/apps/doc/A689824217/AONE?u=uniwater&sid=bookmark-AONE&xid=d49907cf. Accessed 24 Jan. 2022.

- Trimbur, J. (2010). Multiliteracies, Social Futures, and Writing Centers. Writing Center Journal, 30(1), 87+. https://link.gale.com/apps/doc/A360608865/AONE?u=uniwater&sid=bookmark-AONE&xid=68095ecd

We're Putting the Band Back Together: A Framework for Reintroducing Group Work as Students Readjust to On-Campus Learning *

Jola Gurska, Biology, University of Waterloo

Connery Knox, Psychology, University of Waterloo

Jason Thompson, Centre for Teaching Excellence, University of Waterloo

Marcel Pinheiro, Biology, University of Waterloo

Group work can facilitate learning content, alongside building cohort, despite the disparate learning community present during COVID-19 remote learning. Furthermore, a feeling of connectedness to classmates is academically significant, and directly connected to classroom performance (Knekta et al., 2020; Akcaoglu and Lee, 2016.) Group work can be scaled to a range of class sizes/instructional modes, while remaining a lightweight but effective learning activity requiring minimal additional resources (Minnes et al., 2018).

Since fall 2019, we have explored how a structured group module, Biology Academic Study Skills module (BASS), is perceived by students, their reported feelings of connection to classmates and understanding of learning/metacognition. Recognizing the benefits of social metacognition, as reviewed by Chiu and Kuo (2009), which include making students' development of metacognitive skills "visible" by fostering group communication, helping members see limitations in their thought processes, facilitating incorporation of new knowledge through questioning/sharing of information, and enhancing motivation. Our hope was the social metacognitive benefits facilitated by the BASS module will help students become better adjusted to remote learning and help ease the return to campus as they report feeling more connected to peers, more comfortable working alongside others, and better able to communicate effectively.

The BASS module entailed creation of structured groups ("availability" survey, group contracts, rotational roles, group meeting agendas). Additionally, BASS modules involved collaborative assignment submissions (multiple choice creation, authentic assignments) as well as agenda-guided group discussion, reflection on and evaluation of their learning habits, leading to an individually created study plan. A midterm exam wrapper, tied to their individual study plan, was conducted.

We summarize findings from 11 courses and discuss further improvements to empower students to take an active role in their learning. Presenters will share group work materials, sample activities, rubrics, LEARN materials and strategies for facilitating group work in various instructional modes/scales.

Takeaways:

- Group work can be integrated in courses of all sizes using online platforms.
- Students value the opportunity to meet and collaborate with their classmates, particularly during the pandemic.
- Materials will be provided to help instructors organize and assess group work.

References:

- Akcaoglu, M., and Lee, E. 2016. Increasing social presence in online learning through small group discussions. International Review of research in Open and Distributed Learning, 17(3); 1-17.
- Chiu, M.M., and Kuo, S.W. 2009. From metacognition to social metacognition: Similarities, differences, and learning. Journal of Education Research, 3(4): 1-19.
- Knekta, E., Chatzikyriakidou, K., and McCartney, M. 2020. Evaluation of a questionnaire measuring University students' sense of belonging to and involvement in a biology department. CBE - Life Sciences Education, 19: 1-14.

- Minnes, M., Alvarado, C., & Porter, L. 2018. Lightweight Techniques to Support Students in Large Classes. Proceedings of the 49th ACM Technical Symposium on Computer Science Education, 122–127. https://doi.org/10.1145/3159450.3159601

Debate and Op-Ed Article-Writing for Financial Education: A Two-Stage, Student-Centered Assessment Strategy

Vicki Zhang, University of Toronto

In this teaching and learning showcase, I demonstrate a student-centered, active-learning pedagogy that incorporates both in-class debates and after-class Op-Ed article-writing in undergraduate financial education. I have implemented this pedagogy in three different finance courses, but I will focus on a third-year, large-classroom corporate finance course in this demonstration.

In this course, students are invited to participate, on a voluntary basis, in one of the three in-class debates on various controversial topics, for example, whether the capital market is efficient, or whether the behavioural finance's critique of the market efficiency theory is valid. Students are asked to play the role of experts after conducting research on the side of the motion they are debating. During the debate (opening statements, rebuttal, cross examination), the debaters are the de facto peer-teachers for their fellow students.

After the debate, all the non-debaters in the class are then required to synthesize what they have learned from the debaters as well as conduct independent research, so that they can complete a "modified" Op-Ed article with target audience being the general public. To encourage pluralistic thinking, students are asked to write the first part of the article in the "believing" mode (theories and evidence supporting the motion) and second part in the "doubting" mode (theories and evidence opposing the motion). Students can then express their personal opinions on the motion at the end of the article.

This two-stage assessment provides a crucial opportunity for finance students to understand "controversies" in financial theories, to think critically and through multiple perspectives, and to practice their research and communication (both oral and written) skills. This technique puts students squarely at the center of the teaching and learning and affirms their role as partners and peer-teachers.

I will demonstrate the details of this assignment, the grading rubrics, sample of student work.

Takeaways:

- Meaningful debates and peer instructions can be done in a large-classroom lecture setting with a two-stage assessment design that allows voluntary debaters and required writing exercises for non-debaters.
- It is important to create space for students to challenge dominant theories through self-directed research and debates with their peers. Students develop critical thinking, research and communications skills in the process.
- Clear and detailed grading rubrics presented as the time of the assignment is key to a successful implementation of this assessment.

References:

- Bean, J.C. (1996). Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom. San Francisco: Jossey-Bass, pp. 142-143, 156-157.
- Frederick, P.J. (2002). Engaging students actively in large lecture settings. In C.A. Stanley (Ed.), Engaging large classes: Strategies and techniques for college faculty. Bolton, MA: Anker, pp. 62-63.

Personalizing Course Curriculum Using the Lived Experiences of International Students

Alyssa Ang, Science, University of Waterloo

Fienz Constantino, Chemistry, University of Waterloo

Sarah Ruffell, Biology, University of Waterloo

University of Waterloo offers courses to students at partner universities abroad. At many of these institutions, experiential learning is not common practice and would be considered a novel teaching approach. A key goal of this project was to deliver science curriculum using experiential learning, while customizing the course to accommodate the unique needs of international students. In a lower-level science course, with 100% international student enrolment, the course instructor surveyed students on course curriculum and design, to design a course customized to international student needs. From this survey, students requested the addition of more personalized course materials, which mirrored their everyday experiences.

To address student feedback, a course assignment was introduced which required students to incorporate information about their everyday activities. More specifically, the assignment was made for a lower-level science course and involved students tracking the spread of infection through a population using their own contact networks. Since the assignment built off of each student's daily routine, it resulted in an experience personalized to each student. This inquiry-based classroom activity simulated the population-level outcomes of parasitic transmission or infection between contact networks through dice rolls and mathematical models used in epidemiology. A follow up survey was completed to determine if the introduction of the new assignment, addressed the concerns highlighted in previous student feedback. Survey results indicated that the new assignment successfully addressed student concerns, with the majority of students indicating that the assignment was relatable and added a real-world context to course content. In summary, assignments that are designed around students lived experiences create more relatable learning experiences for students.

Takeaways:

- International students were surveyed regarding their experience in a lower-level University of Waterloo course. A major finding of the survey was the requested for more personalized course materials, which mirrored their everyday experiences.
- To address student feedback, a course assignment was introduced which required students to incorporate information about their everyday activities.
- Survey results indicated that the new assignment successfully addressed student concerns, with the majority of students indicating that the assignment was relatable and added a real-world context to course content.
- In summary, assignments that are designed around students lived experiences create more relatable learning experiences for students.

Concurrent Sessions (500): Thursday, April 28 (2:30pm – 3:30pm ET)

Session 501: Presentations

501a: Collaborating with Academic Support Units: Partnerships in Pedagogy, Praxis, and Research to Support Online, Experiential, and Place-Based Learning *

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

Kelsey Johansen, Recreation & Leisure Studies, University of Waterloo

Natalie Chow, Centre for Teaching Excellence, University of Waterloo

A key determinant of environmental beliefs and behaviors are personal values which are typically instilled through environmental, experiential, outdoor, and place-based experiences and education (Stern et al., 1998; Dietz et al., 2005; Hornsey et al., 2016). Experiential education is grounded in philosophies and methodologies that prioritize "engag[ing] with learners in direct experience and focused reflection to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities" (Association for Experiential Education, 2020, par. 1). Outdoor education is learning 'in' and 'for' the outdoors (Gray & Martin, 2012). Place-Based Education creates authentic, meaningful and engaging immersive learning experiences that place students in local heritage, cultures, landscapes, opportunities and experiences (Getting Smart, et al., 2017).

With the transition to remote / online learning necessitated by the COVID-19 pandemic, students have experienced higher levels of burn out, 'ZOOM fatigue' and stress, negatively impacting academic performance (Iglesias-Pradas, et al, 2021). Many have lost opportunities for experiential, outdoor, and place-based learning which enable meaningful, personalized and culturally relevant learning by: giving 'voice and choice' in determining what, how, when and where they learn; tailoring learning to students' strengths, needs and interests; ensuring mastery of academic skills; and, promoting agency (Getting Smart, et al., 2017). While limited research explores how to effectively engage in experiential, outdoor, and place-based education in online / blended / remote learning contexts, and their potential to foster pro-environmental values, partnerships with academic support units may provide opportunities for collaboration that support pedagogical success, teaching innovation, and the design / delivery of educational experiences which address these issues.

This presentation articulates a collaboration between faculty and academic support unit liaisons to design and deliver online experiential, place-based, nature journaling seminars during the pandemic through PebblePad Workbooks, peer feedback, and a Reflective Portfolio Assignment. Use of peer review provided students with opportunities to develop meaningful relationships through online icebreaker activities, leading to richer virtual collaboration. Integration of peer review feedback within the PebblePad workbook replaced in-person sharing, reducing anxiety associated with sharing nature journaling pages in person. An academic support unit liaison ensured peer review guidelines were pedagogically sound for the virtual environment, and that formative feedback was provided to peer reviewers which enhanced the students-as-learners and students-as-peer reviewers experiences. This presentation also explores the emerging research partnership which investigates how to promote experiential, place-based, outdoor learning experiences that foster place attachment, pro-environmental attitudes, environmental concern, and nature stewardship in an otherwise online course, and how the lessons learned through this partnership can be applied as in-person instruction resumes.

Takeaways:

- With the transition to remote / online learning necessitated by the COVID-19 pandemic, students have experienced higher levels of burn out, 'ZOOM fatigue' and stress, negatively impacting academic performance.
- Experiential, outdoor, and place-based learning can combat this by enabling meaningful, personalized and culturally relevant learning and by giving 'voice and choice' in determining what, how, when and where they learn; tailoring learning to students' strengths, needs and interests; ensuring mastery of academic skills; and, promoting agency.
- Partnerships with academic support units provide opportunities for collaboration that support pedagogical success, teaching innovation, and the design / delivery of educational experiences benefiting all learners and which address issues associated with remote / online learning while fostering pro-environmental attitudes.

References:

- Association for Experiential Education. (2020). What is experiential education? Retrieved May 28th, 2021 from: https://www.aee.org/what-is-ee
- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. Annu. Rev. Environ. Resour. 30, pp. 335–372. https://doi.org/10.1146/annurev.energy.30.050504.144444
  Getting Smart, EduInnovation & Teton Science Schools (2017). What is Place-Based Education and Why Does it Matter? (22 pages).
- Gray, T., & Martin, P. (2012). The role and place of outdoor education in the Australian National Curriculum. Journal of Outdoor and Environmental Education, 16, pp. 39 – 50. https://doi.org/10.1007/BF03400937
- Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. Nat. Clim. Change 6, 622–626. https://doi.org/10.1038/nclimate2943
- Iglesias-Pradasa, S., Hernández-García, A., Chaparro-Peláeza, J. & Prieto, J.L., (2021). Emergency remote teaching and students' academic performance in higher education during the COVID-19 pandemic: A case study. Computers in Human Behaviour, 119(106713). https://doi.org/10.1016/j.chb.2021.106713
- Stern, P. C., Dietz, T., & Guagnano, G. A. (1998). A brief inventory of values. Educ. Psychol. Meas. 58, pp. 984–1001. https://doi.org/10.1177/0013164498058006008

501b: Intra-University Collaboration: Reshaping and Reforming Mathematics

Annjanette Bennar, Goodwin University

Michael Litke, Goodwin University

Richmond Gyamfi, Goodwin University

Due to a confluence of events: a pandemic, a conversion to remote learning, and heavy faculty turnover, a group of mathematics instructors was given an opportunity to work with multiple departments across the school to redesign the curriculum and create new practices. The first goal was to align the math curriculum for health science students and provide these future professionals with a better path to pass the national board exams. Collaboration was vital between multiple academic departments. To drive our redesign process, we defined interdisciplinary collaboration as a group of faculty and staff from various fields organized to address a task by applying their area of expertise to resolving complex problems (Amey and Brown, 2006). In alignment with the work of Mattessich and Monsey (1992), we outlined a plan for our collaboration across departments. Faculty from the math, science, and nursing programs all provided insight into designing a curriculum that was the most beneficial in preparing the students for the road ahead. The group partnered with the admissions department to develop a self-placement questionnaire for students to select a math class that best fits their perceived ability level. They worked with the university testing center to create and launch a "credit by exam" option for students who felt they had a firm grasp of the course content.

During the presentation, we will describe how faculty and support departments worked together in the best interest of the students. We will share our experiences and tips for creating partnerships that transcend departments and unite faculty and staff.

Takeaways:

- The benefits of including multiple sets of key stakeholders to help shape curriculum decisions.
- How good collaboration with other departments can lead to better and bigger changes to support students.

References:

- Amey, M. J., & Brown, D. F. (2006). *Breaking out of the box: Interdisciplinary collaboration and faculty work*. Information Age Publishing.
- Mattessich, P. W., & Monsey, B. R. (1992). *Collaboration: what makes it work. A review of research literature on factors influencing successful collaboration*. Amherst H. Wilder Foundation.

501c: Partnerships Between Academic Support Units and Faculty for Fostering Communication Skills for First-Year Faculty of Health Students

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

Jackie Stapleton, Library, University of Waterloo

Laura Williams, Faculty of Health, University of Waterloo

Academic support units in higher education have a long history of supporting students outside of the classroom, but what about forging partnerships inside the classroom with faculty where research and writing are so intricately connected? In the Fall 2017, the Writing and Communication Centre (WCC) along with the Library and a Faculty of Health Instructor joined forces to support the communication milestones of AHS 107, a first-year mandatory communication course serving 700+ students. The goals of the project were to combine expertise in writing, research, and content for curriculum development, but most importantly, support students in the development of their written and research communication skills.

Despite the need for these skills at the initial stages of university, many first-year students do not receive formal writing and research instruction; instead, they are expected to have the necessary skills to be able to complete tasks and assignments successfully. Moreover, instructors are often ill equipped or do not have the capacity to teach writing and research components on top of the course content. By collaborating with campus partners, we approach writing and research communication holistically, with an outcome that fosters student agency in their writing and research communication throughout their academic careers.

To address the need for effective writing and research communication, this unique partnership combined the expertise of the WCC in writing pedagogy and the Library in research development to design three interactive synchronous workshops (later translated to an asynchronous platform) focusing on the three Cs of writing and research: conceptualization, contextualization, and comprehension.

At the UW Teaching and Learning Conference, our proposed session intends to demonstrate how academic support units and Faculty can forged a unique partnership to support the writing and research communication milestones of first-year courses, allowing students to develop and nurture their writing and research skills.

Takeaways:

- Recognize the value of academic support unit collaborations with Faculty to foster communication & research skills for first year students.
- Identify the characteristics of a successful collaboration for large classes to foster communication & research skills for first year students.
- Highlight the impacts of synchronous learning in a large classroom.

References:

- Alexandra C. Simons (2017) Librarians, Faculty, and the Writing Center Partnering to Build an Interdisciplinary Course: A Case Study at the University of Houston, USA, New Review of Academic Librarianship, 23:1, 28-41, DOI: 10.1080/13614533.2016.1185020
- Brownell, Sara & Price, Jordan & Steinman, Lawrence. (2013). Science Communication to the General Public: Why We Need to Teach Undergraduate and Graduate Students this Skill as Part of Their Formal Scientific Training. Journal of undergraduate neuroscience education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience. 12. E6-E10.
- Ferer, E. (2012), "Working together: library and writing center collaboration", Reference Services Review, Vol. 40 No. 4, pp. 543-557. https://doi.org/10.1108/00907321211277350
- Janelle Wilkes, Julie Godwin & Lisa J. Gurney (2015) Developing Information Literacy and Academic Writing Skills Through the Collaborative Design of an Assessment Task for First Year Engineering

Students, Australian Academic & Research Libraries, 46:3, 164-175, DOI: 10.1080/00048623.2015.1062260

- Makhanya, F., Qwabe, L., & Bryant, K. (2021). Characterising collaboration: Reflecting on a partnership between academic support staff and lecturers to help university students learn how to write for the discipline of chemistry. Journal of University Teaching & Learning Practice, 18(7), 41-55. https://doi.org/10.53761/1.18.7.04
- North, S. M. (1984). The Idea of a Writing Center. College English, 46(5), 433–446. https://doi.org/10.2307/377047

Session 502: Presentations

502a: Peer Tutors as Partners and Developers in the Classroom

Lyn Benn, Kwantlen Polytechnic University

Karrah Parke, Kwantlen Polytechnic University

Alice Macpherson, Kwantlen Polytechnic University

Through several iterations and continuous collaboration between the KPU Learning Centre and Business faculty, this program constitutes a comprehensive attempt at using a peer tutor as a partner in the classroom to help students learn to manage time, read e-textbooks, take notes, and revise for exams. These skills serve as an incredibly important base for students to become independent learners as they progress through their academic journey. Results from the program indicate a 14% average increase in exam scores and testimonials from students who praise the efficacy of the skill development opportunity. Serving students for three years, the program has been a resounding success for student *participant*s who become stronger learners, Learning Centre faculty and *peer* tutors who develop their pedagogical applications, and Business faculty who can better support their students' scholastic ambitions.

Participants will review a case study of how *near peer* student partners scaffold success in the university classroom. All tutors are recommended by faculty and have done well in the courses that they tutor in. These students have a desire to share their success with other students. They are hired as student assistants (employees). Tutors complete a three level Tutor Training and Development Program over a minimum of three semesters while they are also actively tutoring. This progam was developed at KPU and has been shared with more than 35 plus post-secondary public institutions in Canada.

They will then be able to identify ways to adapt *learning* strategies for student partnerships within their post-secondary environments. Participants will also *be able to* access *electronic* resource materials.

Takeaways:

- Using the theme of Zones of Proximal Development (Vygotsky, …) participants will recognize the value of peer-to-peer interaction as a way of both scaffolding and laddering students to higher levels of learning and understanding (Zakaria, Z., Care, E., & Griffin, P. 2016).
- Participants will also see the effect of embedding learning strategies within the course content, as the peer tutor guides students at their level of understanding in the context of the classroom.

References:

- Ehlers, U.-D. (2020). *Future Skills – Future Learning, Future Higher Education*. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-29297-3
- Frey, N., Fisher, D., & Almarode (2022) *How Tutoring Works*. Thousand Oaks, CA: Corwin
- Levine, A., & Van Pelt, S. (2021). *The great upheaval: Higher education's past, present, and uncertain future*. Johns Hopkins University Press.
- Middendorf, J. K., & Shopkow, L. (2018). Overcoming student learning bottlenecks: Decode the critical thinking of your discipline (First edition). Stylus.
- Vygotsky, L. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.
- Zakaria, Z., Care, E., & Griffin, P. (2016). Scaffolding instruction where it matters: Teachers' shift from deficit approach to developmental model of learning. Journal of Education and Practice, 7(23), 144–152.

502b: Driver's Seat: A Qualitative Study of Student Partnerships Focused on Teaching, Learning, and Scholarship

Laura Cruz, The Pennsylvania State University

Makayla Shank, The Pennsylvania State University

Many studies of student partnerships have focused on institutions where either research (R1s) or partnerships liberal arts institutions are an intrinsic part of their identity (Cook-Sather et al., 2018; DeAngelo et al., 2016; Kim et al., 2009). The present study, however, focuses on student partners from two small, urban campuses. The CTL Scholars program served to partner selected students with faculty to redesign courses, collect evidence on the redesign, analyze that evidence, and publish the results, over the course of an academic year (Mercer-Mapstone et al., 2017). Our study found that these largely non-traditional students, coming from a wide range of majors and degree programs, became deeply involved in research on teaching and learning, and, by extension, emerged as agents of their own learning and advocates for institutional change (Peifer, 2019; Perrella et al., 2020). The qualitative study, based on the analysis of interviews conducted by and with student participants, found that they were not primarily motivated to participate in the program by conventional incentives, such as increased competitiveness for graduate school, but rather by more intrinsic personal development goals. Indeed, participants noted that the primary outcomes of the program were not that they learned research but rather, they gained in their ability to overcome challenges (resilience) and persevere through a long-term project (grit). In the long run, our findings join others that suggest that such programs can increase access to research and inquiry-driven learning for students from a wide range of institution types (Bangera et al., 2014; Bindra et al., 2018).

Participants in the session will...

- Gain inspiration from a distinctive and successful model of students as pedagogical partners/co-researchers.
- Determine how outcomes such as grit and resilience may apply to their own institutional context.
- Evaluate the significance of institutional context as a factor in designing and implementing successful students as partners programs.

Takeaways:

- Participants can determine how outcomes such as grit and resilience identified by their study may apply to their own institutional context.
- They can evaluate the significance of institutional context as a factor in designing and implementing successful students as partners programs.
- Furthermore, participants can identify additional opportunities to integrate student voice into research and practice in teaching, learning, and scholarship.

References:

- Acai, A., Mercer-Mapstone, L., & Guitman, R. (2019). Mind the (gender) gap: Engaging students as partners to promote gender equity in higher education. *Teaching in Higher Education*: 1–21.
- Bangera, G., & Brownell, S. E. (2014). Course-based undergraduate research experiences can make scientific research more inclusive. *CBE—Life Sciences Education*, *13*(4), 602–606.
- Bauman, G. L., Bustillos, L. T., Bensimon, E. M., Brown, M. C., & Bartee, R. D. (2005). Achieving equitable educational outcomes with all students: The institution's roles and responsibilities. *Washington, DC: Association of American Colleges and Universities*.
- Beckman, M., & Hensel, N. (2009). Making explicit the implicit: Defining undergraduate research. *CUR Quarterly*, *29*(4), 40–44.

- Bindra, G., Easwaran, K., Firasta, L., Hirsch, M., Sosnowski, A., Stec-Marksman, T., Vatansever, G., & Kapoor, A. (2018). Increasing representation and equity in students as partners initiatives. *International Journal for Students As Partners*, *2*(2), 10–15.
- Boshier, R. (2009). Why is the scholarship of teaching and learning such a hard sell? *Higher Education Research & Development*, *28*(1), 1–15.
- Bovill, C. (2017). A framework to explore roles within student-staff partnerships in higher education: Which students are partners, when, and in what ways? *International Journal for Students as Partners*, *1*(1).
- Cook-Sather, A., Matthews, K. E., Ntem, A., & Leathwick, S. (2018). What we talk about when we talk about students as partners. *International Journal for Students as Partners*, *2*(2), 1–9.
- DeAngelo, L., Mason, J., & Winters, D. (2016). Faculty engagement in mentoring undergraduate students: How institutional environments regulate and promote extra-role behavior. *Innovative Higher Education*, *41*(4), 317–332.
- Felten, P., & Lambert, L. M. (2020). *Relationship-rich education: How human connections drive success in college*. Johns Hopkins University Press.
- Felten, P., Bagg, J., Bumbry, M., Hill, J., Hornsby, K., Pratt, M., & Weller, S. (2013). A call for expanding inclusive student engagement in SoTL. *Teaching and Learning Inquiry*, *1*(2), 63–74.
- Flint, A., & Millard, L. (2018). 'Interactions with purpose': Exploring staff understandings of student engagement in a university with an ethos of staff-student partnership. *International Journal for Students as Partners*, *2*(2), 21–38.
- Haeger, H., & Fresquez, C. (2016). Mentoring for inclusion: The impact of mentoring on Undergraduate researchers in the sciences. *CBE—Life Sciences Education*, *15*(3). https://doi.org/10.1187/cbe.16-01-0016
- Healey, M., Bovill, C., & Jenkins, A. (2015). Students as partners in learning. In J. Lea (Ed.), *Enhancing learning and teaching in higher education: Engaging with the dimensions of practice* (pp. 141–172). Open University Press.
- Healey, M., Flint, A., & Harrington, K. (2016). Students as partners: Reflections on a conceptual model. *Teaching & Learning Inquiry*, *4*(2), 8–20.
- Hu, S., Scheuch, K., Schwartz, R., Gayles, J. G., & Li, S. (2008). Reinventing undergraduate education: Engaging college students in research and creative activities. *Higher Education Report*, *33*(4), 1-103.
- Hubball, H., Clarke, A., & Poole, G. (2010). Ten-year reflections on mentoring SoTL research in a research-intensive university. *International Journal for Academic Development*, *15*(2), 117–129.
- Kezar, A. (2012). Toward high-impact non-tenure-track faculty. *Peer Review: Emerging Trends and Key Debates in Undergraduate Education*, *14*(3), 31.
- Kim, Y. K., & Sax, L. J. (2009). Student–faculty interaction in research universities: Differences by student gender, race, social class, and first-generation status. *Research in Higher Education*, *50*(5), 437–459.
- Lopatto, D. (2010). Undergraduate research as a high-impact student experience. *Peer Review: Emerging Trends and Key Debates in Undergraduate Education*, *12*(2), 27.
- Malachowski, M., Osborn, J. M., Karukstis, K. K., & Ambos, E. L. (2015). Realizing student, faculty, and institutional outcomes at scale: Institutionalizing undergraduate research, scholarship, and creative activity within systems and consortia. *New Directions for Higher Education*, *2015*(169), 3–13. https://doi.org/10.1002/he.20118
- Malotky, M. M., Mayes, K., Price, K., Smith, G., Mann, S., Guinyard, M., Veale, S., Mlo, H., Siuh, L., Ksor, V., Young, A. J., Nsonwu, M. B., Morrison, S. D., Sudha, S., & Bernot, K. M. (2020). Fostering inclusion through an interinstitutional, community-engaged, course-based undergraduate research experience. *Journal of Microbiology & Biology Education*, *21*(1), 11. https://doi.org/10.1128/jmbe.v21i1.1939

- Matthews, K. (2016). Students as partners as the future of student engagement. *Student Engagement in Higher Education Journal*, *1*(1).
- Matthews, K. E. (2017). Five propositions for genuine students as partners practice. *International Journal for Students as Partners*, *1*(2). https://doi.org/10.15173/ijsap.v1i2.3315
- Matthews, K. E., Dwyer, A., Hine, L., & Turner, J. (2018). Conceptions of students as partners. *Higher Education*, *76*(6), 957-971.
- McKinney, K. (2012). Making a difference: Application of SoTL to enhance learning. *The Journal of Scholarship of Teaching and Learning*, *12*(1), 1–7.
- Mercer-Mapstone, L., Dvorakova, S. L., Matthews, K. E., Abbot, S., Cheng, B., Felten, P., Knorr, K., Marquis, E., Shammas, R., & Swaim, K. (2017). A systematic literature review of students as partners in higher education. *International Journal for Students as Partners*,*1*(1). https://doi.org/10.15173/ijsap.v1i1.3119
- Milem, J., Chang, M., & Antonio, A. (2005). Making excellence inclusive: A research based perspective. *Washington, DC: Association of American Colleges and Universities*.
- Miller, A. L., Williams, L. M., & Silberstein, S. M. (2019). Found my place: The importance of faculty relationships for seniors' sense of belonging. *Higher Education Research & Development*, *38*(3), 594-608.
- O'Shea, S. (2018). Equity and students as partners: The importance of inclusive relationships. *International Journal for Students as Partners*, *2*(2), 16-20.
- Peifer, J. S. (2019). Context and reasons for bolstering diversity in undergraduate research. *Frontiers in Psychology*, *10*, 336.
- Perrella, A., Dam, H., Martin, L., MacLachlan, J. C., & Fenton, N. (2020). Between culture and curricula: Exploring student and faculty experiences of undergraduate research and inquiry. *Teaching & Learning Inquiry*, *8*(2), 90–113.
- Pierszalowski, S., Smith, F., & López-Cevallos, D. (2020). Research experiences for all undergraduate students? Building a more equitable and inclusive office of undergraduate research at a land-grant institution. *Change: The Magazine of Higher Learning*, *52*(6), 38-47.
- Santos, S. J., & Reigadas, E. T. (2004). Understanding the student-faculty mentoring process: Its effects on at-risk university students. *Journal of College Student Retention: Research, Theory & Practice*, *6*(3), 337–357.
- Sorenson, L. (2001). College teachers and student consultants: Collaborating about teaching and learning. *Student-assisted teaching: A guide to faculty-student teamwork*, 179–183.
- Wallace, D., Abel, R., & Ropers-Huilman, B. (2000). Clearing a path for success: Deconstructing borders through undergraduate mentoring. *The Review of Higher Education*, *24*(1), 87-102.

502c: Creating Inter-Learning Connections: Opportunities for Peer Collaboration Among Leisure Students

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Taylor Kurta, Recreation & Leisure Studies, University of Waterloo

Sherry Dupuis, Recreation & Leisure Studies, University of Waterloo

Veronica Stephenson, Centre for Teaching Excellence, University of Waterloo

Throughout Winter 2021, we worked collaboratively (as instructors, teaching assistant, and staff) to create a shared virtual learning space by bringing upper- and lower-year therapeutic recreation (TR) students in two different courses together to learn with and from each other. We intentionally designed this inter-learning space to support integrated learning and curriculums, peer-to-peer connections, and collaborative praxis (practice and action). We were attracted to the idea of a community of inquiry framework integrated with Dialogical Education (Boston et al., 2019; Fiock, 2020; Vella, 2002) – that is, creating space for purposeful critical dialogue, collaborative decision-making, active engagement, and reflection on meaningful learning through the development of social, cognitive, and teaching presence.

In this session, we share details on how we utilized collaborative praxis pedagogies through the implementation of inter-learning opportunities between first year and upper year students (e.g., integration of curriculums, design of collaborative practice-based teaching methods, practices of supported feedback, and student feedback/reflection processes), discuss the triumphs and hurdles we encountered, and provide recommendations for future pedagogical practices that encourage integrated instructor and student partnerships within and across disciplines. More specifically, we describe how we supported regular student-led integrated curriculum seminars, where students took an active role in their learning processes and supporting the learning of others, and created safe spaces for practicing skills and building meaningful connections within and across cohorts. We offer our experience as an example to inspire more meaningful partnerships between teaching team members and students and highlight the possibilities of inter-learning initiatives.

Takeaways:

- The use of supportive, integrated learning and curriculums, peer-to-peer connections, and collaborative praxis (practice and action).
- Using a community of inquiry framework integrated with Dialogical Education to create space for purposeful critical dialogue, engagement, and reflection on meaningful learning through the development of social, cognitive, and teaching presence.
- Provide a useful example of an integrated teaching method that works to create more meaningful partnerships between teaching team members and students.

References:

- Boston, W., Diaz, S. R., Gibson, A. M., Ice, P., Richardson, K, & Swan, K. (2019). An Exploration of the Relationship Between Indicators of the Community of Inquiry Framework and Retention in Online Programs. Journal of Asynchronous Learning Networks, 14(1).
- Fiock, H. (2020). Designing a community of inquiry in online courses. The International Review of Research in Open and Distributed Learning, 21(1), 135-153.
- Vella, J. (2002). Learning to listen, learning to teach: The power of dialogue in education adults. Josey-Bass.

Session 503: Presentations

503a: Building STEM Students' Identity and Sense of Belonging through Mentorship Vision Boards *

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

Ashley Irwin, English, University of Waterloo

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The University of Waterloo's 2020-2025 strategic plan outlines a commitment to fostering inclusivity and a sense of belonging among its students. For students in STEM fields, particularly those who identify as women and/or racialized, this sense of being a "science person" and belonging to the field can be elusive (Carlone & Johnson, 2007). Research shows that mentors and role models, especially those who might share a student's identities, values, and interests, play an important role in bolstering a student's sense of belonging in their field (Hernandez, et al., 2018; Herrmann et al, 2016; Stoeger et al., 2021), yet mentorship opportunities remain scarce for women and racialized students (Blake-Beard, et al., 2011).

To address this gap, this practice-based presentation introduces the Mentorship Vision Board (MVB) as a way to supplement traditional forms of mentorship and give students agency in their access to mentors. The MVB is a novel, flexible, and low-stakes intervention that asks students to a) locate role models who reflect facets of their identities and interests, b) display them creatively, and c) reflect on their choices. The presenters will discuss their experiences implementing and adapting the MVP in their science and engineering communication courses, including how the process was shaped through partnership and collaboration. The presenters will also provide strategies and resources for instructors who wish to adapt a MVB intervention in their own courses.

Takeaways:

- Mentors and role models, especially those who might share a student's identities, values, and interests, play an important role in bolstering a student's identity and sense of belonging.
- Mentorship vision boards are a novel, flexible, and low-stakes intervention that can supplement traditional forms of mentorship.

References:

- Carlone, H. B., & Johnson, A. (2007). Understanding the science experiences of successful women of color: Science identity as an analytic lens. Journal of Research in Science Teaching, 44(8), 1187–1218. https://doi.org/10.1002/tea.20237
- Blake-Beard, S., Bayne, M. L., Crosby, F. J., & Muller, C. B. (2011). Matching by race and gender in mentoring relationships: Keeping our eyes on the prize. Journal of Social issues, 67(3), 622-643.
- Hernandez, P. R., Bloodhart, B., Adams, A. S., Barnes, R. T., Burt, M., Clinton, S. M., ... & Fischer, E. V. (2018). Role modeling is a viable retention strategy for undergraduate women in the geosciences. Geosphere, 14(6), 2585-2593.
- Herrmann, S. D., Adelman, R. M., Bodford, J. E., Graudejus, O., Okun, M. A., & Kwan, V. S. (2016). The effects of a female role model on academic performance and persistence of women in STEM courses. Basic and Applied Social Psychology, 38(5), 258-268.
- Stoeger, H., Heilemann, M., Debatin, T., Hopp, M. D. S., Schirner, S., & Ziegler, A. (2021). Nine years of online mentoring for secondary school girls in STEM: An empirical comparison of three mentoring formats. Annals of the New York Academy of Sciences, 1483(1), 153–173. https://doi.org/10.1111/nyas.14476

503b: Partnering with Undergraduate Students to Address the Needs of Independent Research Students in STEM

Katie Harding, McMaster University

Abeer Siddiqui, McMaster University

Undergraduate research experiences are a high-impact educational practice which can help students to learn how scientific research is done, acquire new technical, professional, and communication skills, and evaluate and refine their career goals and plans for graduate school (Hunter, Laursen, and Seymour, 2007).

In carrying out an undergraduate research project, students may need to develop new skills in areas such as searching and reading the literature, managing research data, communicating their findings, and learning how to work in an academic research environment. However, students' pre-existing knowledge in these areas and the support they receive from their faculty supervisors to develop these skills vary greatly. In this project, we sought to understand the needs of undergraduate student researchers in science and engineering related to information literacy, data literacy, science communication, and navigating academic culture. We planned to use our findings to inform the development of educational resources to support students in developing these skills.

We recognized that our study would benefit from students' perspectives and expertise and partnered with undergraduate students Saad Ahmed (Faculty of Science) and Raymond Tolentino (Faculty of Engineering) for this project. We conducted interviews with undergraduate research students and faculty supervisors in Science and Engineering to identify content would be most useful for research students and students' preferred modes of content delivery. Our student partners informed our study design, led student interviews, participated in data analysis, and developed instructional content.

In addition to describing our findings and the knowledge gaps we identified, we will speak to how this project benefited from this collaboration with students and led to development of student-centered (and student-created) resources. We will emphasize the unique experiences and perspectives that students can bring to pedagogical research and developing educational materials.

Takeaways:

- Identifying knowledge gaps in STEM undergraduate education and research.
- Leveraging student expertise to inform research study design and develop instructional content.
- Positioning students as instructors.

References:

- Hunter, A.-B., Laursen, S. L., & Seymour, E. (2007). Becoming a scientist: The role of undergraduate research in students' cognitive, personal, and professional development. *Science Education*, *91*(1), 36–74. https://doi.org/10.1002/sce.20173

503c: Co-Designing an Introductory Chemistry Laboratory Course: An Analysis of the Process and Lessons Learned

Hannah Jardine, American University

Elizabeth Campbell Griffith, University of Maryland-College Park

When faculty work with students to co-create courses and curricula, students are more deeply engaged in learning, faculty experience greater motivation for teaching, and the curricula better addresses students' needs (Cook-Sather, Bovill & Felten, 2014; Cook-Sather, Bahti, Ntem, 2019). The greatest impact occurs when faculty go beyond asking students for feedback and involve them in design, production, and implementation of courses and curricula (Martens et al., 2019), but increased levels of student involvement and engagement in co-design come with challenges (Bovill et al., 2016). In this presentation, we explore the process of student-faculty co-creation in more depth by presenting a specific case of involving students as partners in the redesign of an introductory chemistry laboratory course. The first author is an educational developer who supported and observed the faculty-student course redesign partnership and collected data throughout the process. We will share lessons learned from a careful analysis of how the faculty member set the stage for a summer-long co-design project, how the team of one faculty member and five students worked together to negotiate roles and responsibilities, and how they responded to the challenges involved in the process.

By the end of this presentation, participants will (1) consider and reflect on how to set up and structure successful co-design partnerships and attend to potential challenges; (2) explore the role that educational developers and teaching centers can play in facilitating co-design partnerships. This session connects to the conference themes of partners in course design as well as partnerships with academic support units, such as teaching centers. It addresses several conference theme questions including: How can students become partners in course (re)development? How can members of support units (e.g., teaching centers) work in partnership with faculty and students to (re)design courses?

Takeaways:

- Considerations for structuring a successful co-design partnership include recruiting a team of students with a variety of experiences and diverse backgrounds; allowing for both individual and collaborative work; providing opportunities for freedom, flexibility, and creativity; and setting up organized systems for communication and collaboration.
- Challenges to consider during the co-design process include balancing depth versus breadth; attending to differences in expertise, motivation, and opinion; and balancing freedom and structure.
- In this case, the financial support of a teaching center grant along with the guidance of an educational developer who had student partner experience were both critical in the success of the co-design partnership.

References:

- Bovill, C., Cook-Sather, A., Felten, P., Millard, L., & Moore-Cherry, N. (2016). Addressing potential challenges in co-creating learning and teaching: Overcoming resistance, navigating institutional norms and ensuring inclusivity in student–staff partnerships. Higher Education, 71(2), 195-208.
- Cook-Sather, A., Bovill, C., & Felten, P. (2014). Engaging students as partners in learning and teaching: A guide for faculty. John Wiley & Sons.
- Cook-Sather, A., Bahti, M., & Ntem, A. (2019). Pedagogical Partnerships. Elon University Center for Engaged Learning.
- Martens, S. E., Spruijt, A., Wolfhagen, I. H. A. P., Whittingham, J. R. D., & Dolmans, D. H. J. M. (2018). A students' take on student-staff partnerships: experiences and preferences. 910–919.

Session 504: Presentations

504a: Indigenization of Learning: Examining Partnership across Nationalities

Hari Jnawali, Global Governance, University of Waterloo

This paper will examine the perspectives and experiences of non-Indigenous graduate students regarding the Indigenization of learning at the University of Waterloo. Indigenization attempts to center Indigenous perspectives, decolonize academic practices, and recognize distinct Indigenous identities. But decolonization is a continuous process (Smith, 2012) and warrants the accountable participation of non-Indigenous peoples. Indigenization requires non-Indigenous students to unlearn their biases, understand Indigenous grievances, and recognize the significance of Indigenous epistemic practices. Both Indigenous and non-Indigenous students are thus the target audience and partners (Gaudry, 2018). In recognition of this aspect, the Canadian Universities acknowledge the need to foster meaningful partnerships across nationalities and have adopted the Indigenization of education. The Indigenization of learning has received substantive attention, and most studies are being conducted from Indigenous perspectives (Laurie, et al, 2017; Gaudry & Lorenz, 2018; Battiste, Bell &Findlay, 2002). Studies stress that universities must become accountable to Indigenous students (Gallop & Bastein, 2016; Gaudry, 2018). Decolonization of academic practices requires transformation on the part of non-Indigenous students, which most studies have not focused on.

In response to this gap, this research will examine the following inter-related questions: How do non-Indigenous graduate students understand the meaning and purpose of the Indigenization of learning? How familiar are non-Indigenous graduate students at the University of Waterloo with the University's initiatives related to Indigenization of teaching and learning? What are some of the ways in which graduate students encountered Indigenization of learning during their graduate studies? How has Indigenization fostered partnership across nationalities?

Methodologically, this research will take two different approaches. First, it will collect the non-Indigenous students' responses through a survey and identify the effectiveness of Indigenization among these students. Second, it will develop some parameters to examine the survey responses, and these parameters will be based on the opinions/ statements/ arguments of Indigenous scholars and pedagogues. In sum, this method is useful to get a balanced perspective of Indigenous and non-Indigenous nationalities.

The presentation is relevant to the conference in the sense that it examines the academic partnership across different layers in the learning process. Its learning outcomes are 1) to demonstrate Indigenization in course content, community relation, and teaching approaches and 2) to examine the status of partnership that exists between Indigenous and non-Indigenous nationalities.

Takeaways:

- Indigenization should be studied from the perspectives of non-Indigenous students too. Else, an important aspect of partnership among learners will be missed.
- Indigenous pedagogies are different from the Western pedagogies.

References:

- Battiste, M., Bell, L. &Findlay, L.M. (2002). Decolonizing education in Canadian Universities: An Interdisciplinary, international, Indigenous research project. *Canadian Journal of Native Education*, 26(2), 82-95.
- Gallop, C. J. & Bastein, N. (2016). Supporting success: Aboriginal students in higher education. *Canadian Journal of Higher Education*, 46(2), 206-224.
- Gaudry, A. (2019). Paved with good intentions: Simply requiring content is not enough. In E. Andrea & K. McCracken (Eds.), *Beyond the Lecture: Innovations in Teaching Canadian History* (pp. 205-213).

- 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.
- Louie, D. W., Poitras-Pratt, Y. & Hanson, A. J. (2017). Applying Indigenizing principles of decolonizing methodologies in University classrooms. *Canadian Journal of Higher Education*, 47(3), 16-33.
- Smith, L. T. (2012). *Decolonizing Methodologies: Research and Indigenous Peoples*. London: Zed Books.

504b: Ethical Partnerships: The Labour of Community Engaged Learning

Sandra Smeltzer, Western University

Vanessa R. Sperduti, Western University

Calvi Leon, Western University

Inhye Park, Western University

In this presentation, we focus attention on the significant labour required to ethically facilitate community engaged learning (CEL), which has become increasingly demanding for faculty, staff, students, and community partners as a result of COVID-19. CEL, often referred to as service learning or community service learning, is a form of experiential learning (EL) for which students and community partners collaboratively engage in projects for mutually beneficial outcomes. We contend that CEL, a community-focused partnership that has grown substantially at our university over the past five years across all disciplines, can positively impact students' academic, personal, and professional lives because of its emphasis on equity, its community orientation, and its commitment to reflexivity. However, to achieve such beneficial outcomes, especially within the context of the neoliberal university, CEL must be facilitated in an ethical manner, which is incredibly labor-intensive for students, faculty and staff members, and community partners (particularly given that many non-profit organizations are struggling financially as a result of the pandemic while also managing increased community needs and employee/volunteer burnout). In our talk, we will briefly describe that although CEL may be more important now than ever in the wake of COVID-19, the workload of coordinating and participating in this form of 'hands-on' pedagogy has intensified for all participants. We highlight that the shift from in-person to emergency remote learning and mentorship has dramatically increased this workload, which has had an especially negative impact on those individuals who are already struggling with the physical and mental health ramifications of living through a pandemic. In the last third of the presentation, we will offer concrete suggestions for how universities can develop ethical practices and policies that proactively support individuals who facilitate and participate in CEL to ensure their overall well-being.

Takeaways:

We will highlight key issues that must be taken into consideration to ensure community engaged learning (CEL) activities are ethical during and post-pandemic. The presentation focuses attention specifically on labour concerns in this pedagogical relationship between communities and universities.

We will offer concrete suggestions for how universities can develop ethical practices and policies to proactively support individuals who facilitate and participate in CEL to ensure their overall well-being. We will focus attention specifically on supports related to the mental health of students, faculty, and staff

1) Facilitating ethical CEL is labor-intensive.

2) The pandemic has impacted how we 'think and do' CEL as a HIP.

3) Proactive support to maintain and expand CEL is necessary.

References:

- Bradford, D. L. (2019). Ethical Issues in Experiential Learning. *Journal of Management Education*, *43*(1), 89–98.
- European Observatory of Service-Learning in Higher Education. (2020). Practical guide on e-Service-Learning in response to COVID-19. https://www.eoslhe.eu/wp-content/uploads/2020/10/Practical-guide-on-e-Service-Learning_web.pdf
- Groulx, M., Nowak, N., Levy, K., & Booth, A. (2020). Community needs and interests in university–community partnerships for sustainable development. International Journal of Sustainability in Higher Education, 22(1), 274-290.

- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. Educause Review, 27, 1-12.
- Karasik, R. J. (2020). Community partners' perspectives and the faculty role in community-based learning. *Journal of Experiential Education*, *43*(2), 113-135.
- Krasny, M. E. (2020, May 14). Social distancing is no reason to stop service learning – just do it online. The Conversation. https://theconversation.com/social-distancing-is-no-reason-to-stop-service-learning-just-do-it-online-137034
- Kuh, G. D. (2008). Excerpt from high-impact educational practices: What they are, who has access to them, and why they matter. *Association of American Colleges and Universities*, *14*(3), 28-29.
- Levac, L. (2020). Negotiating tensions in a community engaged and intersectionality-informed political science course. *Politics, Groups, and Identities*, *8*(1), 194-202.
- Martin, T. R., Lecrom, C. W., & Lassiter, J. W. (2017). Hearts on our sleeves: Emotions experienced by service learning faculty. *The International Journal of Research on Service Learning and Community Engagement*, *5*(1), 41-56.
- McGowan, S. (2021, February 1). Re-imagining experiential learning during the pandemic. University Affairs. https://www.universityaffairs.ca/features/feature-article/re-imaging-experiential-learning-during-the-pandemic/.
- Mitchell-Eaton, E. (2020). Postpartum geographies: Intersections of academic labor and care work. Environment and Planning C: Politics and Space, 0(0), 1-18.
- Pirbhai-Illich, F. (2013). Crossing borders: At the nexus of critical service learning, literacy, and social justice. Waikato Journal of Education, 18(2), 79-96.
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, *2*, 1-23, 923-945.
- Smeltzer, S., Leon, C., & Sperduti, V. (2020). You can't throw snowballs over Zoom: The challenges of service-learning reflection via online platforms. Revista Iberoamericana de Aprendizaje-Servicio, 10, 101-112.
- Smeltzer, S., Sperduti, V. R., Leon, C., & Park, I. (2022). Labouring for a Cause: Community Engaged Pedagogy During a Pandemic. *Workplace: A Journal for Academic Labor*, *33*, 49-60.

504c: Student Voices: How Might we Improve the Student Learning Experience at UW?

Katie Plaisance, Knowledge Integration, University of Waterloo

Students from INTEG 275: Making Collaboration Work

This presentation details a "design challenge" given to 1st and 2nd year students as part of a UW course held in Fall 2021. One of the key objectives of this course was to give students the opportunity to collaborate on a real-world problem that was meaningful to them. The design challenge was, "How might we improve the student learning experience at UW?" After spending the first half of the course learning how to collaborate, students formed diverse teams and began the design challenge. Throughout the process, they learned how to analyze the problem, brainstorm solutions, narrow down options, provide feedback to other groups, and present their proposed solutions.

Several goals motivated this design challenge: (1) enable students to develop the ability to work well in a team and engage in collaborative problem-solving -- two of the most sought-after skills by employers (NACE 2021); (2) build the course around authentic assessment (Frey et al. 2012); and (3) give students a voice in key aspects of their learning experience (Bron & Veugelers 2014).

The course instructor notified students that their solutions would be synthesized and presented at UWTL Conference, with their permission, as a means of sharing their ideas with stakeholders at UW. (The instructor will also be offering students the opportunity to share their ideas via an online platform.)

The course, and this proposal, embodies partnerships in pedagogy. The design challenge afforded students the opportunity to learn how teaching and learning happens "behind the scenes." The instructor met with groups to inform their understanding of the problem and students did their own research on existing solutions. This empowered students by enhancing their understanding of how things work at UW, enabling them to provide feasible ideas for improving learning experiences, now and in the future.

Takeaways:

- It is important to give students authentic learning experiences, including opportunities to address real-world problems that are meaningful to them.
- Students have lots of ideas as to how the learning experience at our university can be improved, and it would be beneficial to help them develop their ideas and give them venues for sharing them.

References:

- Bron, Jeroen, & Wiel Veugelers, "Why We Need to Involve Our Students in Curriculum Design." 2014. Curriculum and Teaching Dialogue, 16(1): 125-139.
- Frey, Bruce B., Vicki L. Schmitt, & Justin P. Allen, "Defining Authentic Classroom Assessment." 2012. Practical Assessment Research and Evaluation, 17(2): 1-18.
- National Association of Colleges and Employers (NACE),"The Key Attributes Employers Seek on College Graduates' Resumes." 2021. https://www.naceweb.org/about-us/press/the-key-attributes-employers-seek-on-college-graduates-resumes/

Session 505: Panel Discussion - Reflection, Community and Student-Led Independently Created Courses: Student and Instructor Perspectives

Katherine Lithgow, Centre for Teaching Excellence, University of Waterloo

Mary Robinson, Engineering Undergrad Office, University of Waterloo

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

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

Maddy McBay, School of Public Health Sciences, University of Waterloo

This panel presentation explores how reflection-in-community impacts the learning and teaching experience in 3 different courses implementing the SLICC model.

Developed at the University of Edinburgh, SLICCs (student-led, individually created courses) promote student ownership of their learning by allowing students to co-create their learning experience, leading to deeper student engagement (Bovill et al. 2016; Healey et al., 2014). Focusing on learning outcomes related to analysis, application, recognizing and developing skills and mindsets, and self-evaluation, students examine and articulate their growth and development by completing weekly reflections as they work on their experiential learning project. In its original form, the Edinburgh model included three formal opportunities for students to receive feedback during the SLICC process, i.e., the initial proposal stage, the interim report, and the final report. Students are required to complete weekly reflections, but the reflections are not reviewed or assessed.

Preliminary findings from a LITE grant funded project undertaken to better understand SLICCs from the University of Waterloo's perspective included the challenge that students experienced trying to respond to the reflective prompts for their weekly reflections. This is not surprising given that critical reflection is a skill that is learned through practice and feedback (Dewey, 1933; Rodgers, 2002). As well as being a meaning-making process, critical reflection is also an emotional exercise that needs to happen in community (Dewey, 1933; Rodgers, 2002). To better support the reflective practice component of SLICCs, during the W2022 term four instructors incorporated SLICCs into their respective courses and designed opportunities to support reflection-in-community. Examples of opportunities included facilitated discussions with peers, student-led peer-to-peer, instructor and student, and industry expert and student discussions.

Panelists will share how reflecting-in-community impacted the co-created learning experience from the learner and instructor perspective, and lessons learned that can inform future iterations of SLICCs and reflective practice

Takeaways:

- Reflection is a skill that is learned through practice and feedback.
- Reflection needs to happen in community.

References:

- Bovill, C., Cook-Sather, A., Felten, P., Millard, L., and Moore-Cherry, N. (2016). Addressing potential challenges in co-creating learning and teaching: overcoming resistance, navigating institutional norms and ensuring inclusivity in student-staff partnerships, Higher Education, 71, 195–208
- Dewey, J. (1910/1933). How we think. Boston, MA: D.C. Heath and Company.
- Healey, M., Flint, A., and Harrington, K. (2014). Engagement through partnership: Students as partners in learning and teaching in higher education. York, UK. Higher Education Academy.
- Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. The Teachers College Record, 104(4), 842-866.

- Speirs, NM, Riley, SC & McCabe, G (2017). 'Student-Led, Individually-Created Courses: Using Structured Reflection within Experiential Learning to Enable Widening Participation Students? Transitions Through and Beyond Higher Education', Journal of Perspectives in Applied Academic Practice, vol. 5, no. 2. https://doi.org/10.14297/jpaap.v5i2.274

Session 506: Panel Discussion - Partnering with Students: Fostering Student Agency through Antiracist Writing Pedagogy

Clare Bermingham, Writing and Communication Centre, University of Waterloo

Christine Edet, Writing and Communication Centre, University of Waterloo

Natalie Alhadidi, Writing and Communication Centre, University of Waterloo

Masa Torbica, Writing and Communication Centre, University of Waterloo

Elise Vist, Writing and Communication Centre, University of Waterloo

Nadine Fladd, Writing and Communication Centre, University of Waterloo

Partnering with students is central to antiracist writing pedagogy, which fosters student agency and engages students' whole selves and identities in their writing practices (Condon 2007). An antiracist writing centre praxis draws on theories of translingualism (Huang 2010), code-meshing (Young, Barrett, Young-Rivera & Lovejoy 2014), and decolonization (Cushman 2016) as practitioners focus on reorienting power in teaching/learning relationships to engage students as partners in the writing process.

This panel, featuring staff and student tutors from University of Waterloo's Writing and Communication Centre (WCC), will discuss how antiracism is embedded in three distinct programs, and how this pedagogy serves as universal design for learning (UDL) that benefits all students and can inform classroom pedagogy.

First, the WCC peer tutors will discuss how they implement principles of equity and inclusion in appointments. In contrast to grammar-focused feedback on course assignments that decreases multilingual students' confidence levels and leads to deficit-oriented teaching (Makmillen & Norman 2019), peer tutors balance collaborative writing and skills development while affirming students' existing skills and recognizing their discipline-specific expertise.

Second, the WCC's academic speaking program, Speak Like a Scholar, increases accessibility for multilingual and international students by implementing a feedback system that prioritizes writer agency (Chavez, 2021). This system empowers students to resist feedback that reinforces racist norms of scholarly communication and expand their understanding of what "speaking like a scholar" looks like.

Finally, the WCC has partnered with the Graduate Student Association (GSA-UW) to develop a resource that addresses needs identified through its BIPOC collective: support for graduate students who are pursuing decolonial, feminist, queer, anti-racist, or Indigenous or traditional approaches to research. "Statements of Positionality" is an asynchronous, online workshop featuring the work of University of Waterloo graduate students. It guides students through identifying their social location(s), their approach(es) to research, where these elements intersect, and how to articulate those intersections.

Takeaways:

- Anti-racist writing pedagogy is Universal Design for Learning (UDL).
- Allowing students to set their own agendas for feedback/learning contributes to antiracist pedagogy.
- Engaging students in in their own learning and that of their peers has immense value for both learners and instructors.

References:

- Chavez, F. R. (2021) The anti-racist writing workshop: How to decolonize the creative classroom. Chicago: Haymarket Books.
- Condon, F. (2007). Beyond the known: writing centers and the work of anti-racism. The Writing Center Journal 27(2), 19-38.

- Cushman, E. (2016). Translingual and decolonial approaches to meaning making. College English, 78(3), 234-242.
- Huang, T. (2010). The application of translingualism to language revitalization in Taiwan. Asian Social Science 6(2), 44-59. Retrieved from https://www.ccsenet.org/journal/index.php/ass/article/view/5038
- Makmillen, S., & Norman, K. (2019). The Power of deficit discourses in student talk about writing. Discourse and Writing/Rédactologie, 29, 217–237. https://doi.org/10.31468/cjsdwr.733
- Young, V.A., Barrett, R., Young-Rivera, Y., & Lovejoy, K.B. (2014). Other People's English: Code-meshing, code-switching, and African American literacy. New York: Teachers College Press.

Session 507: Workshop - EF Support and Equity: Using Socially Shared Learning Regulation to Create Responsive and Accommodating Learning Cultures

Laurie Faith, University of Toronto

"Executive functions" (EFs) such as organization, attention, and time management are responsible for over half of all variation in student performance and are particularly challenging for students with exceptionalities (Visu-Petra et al., 2011). Across the lifespan, they support happiness, health, and productivity. Unfortunately, EFs do not fully develop without the timely, context-embedded, and personally meaningful support (Brown et al., 1981; Diamond & Ling, 2020; Dignath et al., 2008; Veenman, 2007) that many educators deem logistically exhausting (Winne, 2010). Students engaging in higher learning often bring with them a lifetime of culturally-based adaptive habits and preferred strategies. How can we maintain high standards for the non-negotiable aspects of a scholarly program, while also providing the flexibility that each and every unique student will need in order to fulfil their potential?

This workshop will explore methods for shifting towards a more feasible and productive type of learning regulation support. While traditional, one-on-one learning regulation support ("how can you improve") often leaves teachers overwhelmed, exhausted, and avoidant, original research will be presented to illustrate how a socially shared and communal approach ("how can WE improve") promotes teacher learning, closer classroom relationships, and more strategic and successful student work (Faith, in press). Based on a century of research, designed and studied by a veteran teacher/researcher, advocated by leading clinical psychologists (Peg Dawson) and EF researchers (Adele Diamond), this approach asks: what if every learning environment built a feasible learning regulation process right into their core pedagogical habits? In addition to rolling up our sleeves and exploring new practices, evidence supporting this teaching approach will be presented, issues related to feasibility issues discussed, and alignment between this approach and key objectives for equity, agency, inquiry, adaptivity, and cultural responsiveness will be described.

Takeaways:

- Attendees will understand the state of the art for supporting student learning regulation in the classroom, and engage with new ideas for improving it with a more socially shared approach.
- Attendees will experience the emotional and social impact of engaging in a socially shared form of learning regulation.
- Attendees will learn a feasible universal design for integrating EF and learning regulation support into diverse learning environments at any educational level.

References:

- Brown, A. L., Campione, J. C., & Day, J. D. (1981). Learning to learn: On training students to learn from texts. Educational Researcher, 10(2), 14-21.
- Diamond, A., & Ling, D. S. (2020). Review of the evidence on, and fundamental questions about, efforts to improve executive functions, including working memory. In K. Novick, M. F. Bunting, M. R. Dougherty, & R. W. Engle (Eds.), Cognitive and working memory training: Perspectives from psychology, neuroscience, and human development (pp. 143-431). New York, NY: Oxford University Press.
- Dignath, C., Buettner, G., & Langfeldt, H. (2008). How can primary school students learn self-regulated learning strategies most effectively? A meta-analysis on self-regulation training programmes. Educational Research Review, 3(2), 101-129.
- Veenman, M. V. J. (2007). The assessment of metacognition: A matter of multi-method designs. EAPA Newsletter of the European Association of Psychological Assessment, 1, 8-9.
- Winne, P. H. (2010). Bootstrapping learner's self-regulated learning. Psychological Test and Assessment Modelling, 52(4), 472-490.
- Faith (2021). How a socially shared approach may rescue the teaching of learning regulation. [Manuscript submitted for publication].

- Visu-Petra, L., Cheie, L., Benga, O., & Miclea, M. (2011). Cognitive control goes to school: The impact of executive functions on academic performance. Procedia - Social and Behavioral Sciences, 11, 240-244.

THANK YOU FOR ATTENDING!
SEE YOU NEXT YEAR!

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