

## **Ubuntu: A cookbook project to build connectedness and community in first year students**

*Doug Thomson, Marilyn Cresswell & Alyssa Ferns*

Developing a sense of community in the classroom is central for student success. At Humber we are faced with some particular challenges for our incoming degree students that impact their connectedness (i.e. diverse backgrounds, not spending time on campus to socialize, no bar, long commutes, etc.). A lack of social support and a lack of social networks with other students can contribute to academic failure and dropping-out of post-secondary education (Silva & Ravindran, 2016). Disconnected students struggle academically and socially. Ubuntu table explores and develops a method to increase connectedness in the classroom, and hopefully to improve student wellbeing and academic success.

People like to eat, and food that creates positive memories can be shared and enjoyed. Sharing family recipes, and personal histories fosters a sense of community (Hancock, 2001; Schermuly & Forbes-Mewett, 2016). We are exploring the impact having first-year students participate in a group cookbook project could have on their connectedness and community.

Presenters/Facilitators will explore the benefits of driving connectedness how we, as professors, can support developing a sense of community from first year onward. The research to date will be reviewed and the current early statistics from 2019 Fall may be shared.

## **Teaching Emancipatory Leadership: A Framework for Inclusive Pedagogy**

*Nouman Ashraf*

Emancipatory Leadership is premised upon connecting self-awareness with tools for overcoming barriers to inclusion at the personal, inter-personal and organizational levels. Some of these are implicit whereas other are more structural in nature. A key factor to effective teaching is the ability to establish psychological safety within the learning environment. In order to accomplish, it is imperative that both teachers and learners abandon their comfort zones wherein few risks are taken. In contrast, a safe space is where the learner can connect with and share their lived experiences, their unshared aspirations, and even their current barriers. Such a space allows them to leverage the richness and nuance of what they bring to the learning experience, thereby allowing them to co-create a successful teaching and learning encounter.

This paper will address how effectively creating a safe space allows instructors to be open and even a little vulnerable with learners. Furthermore, it explores how such an approach is essential to creating a truly inclusive environment that leverages reciprocity. Specifically, the *Student Consultant Model* will outline how instructors can best integrate student voices for greater impact. It will also address how students can be developed as

contributors through a guided mastery approach into being contributors to a learning environment that culminates in further developing their cultural fluency skills.

## **Innovation by Design: An Approach to Design, Develop and Evaluate**

*Ilana Bayer, Asiana Elma & Lawrence Grierson*

Looking to explore new boundaries in your course? Want to try new approaches or activities but not sure where to start? Design thinking provides a structured approach that can enable educators to uncover challenges or opportunities and explore innovative solutions to meet the needs of their learners. This human-centered approach puts the user at the center of design decisions as well as engages the user in the design process. In this session, we will take a look at each of the core stages of the approach (empathize, define, ideate, prototype and test), tools and techniques that can be used for each stage as well as the types of data that can be gathered and generated in the process. We will draw on examples of how this approach is being used to explore user experience and inform areas for improvement and enhancement in the online Health Sciences Education Graduate Program at McMaster University. As we explore each stage of the process, participants will have the opportunity to engage with practical tools used for design thinking and learn how to apply it to their own work.

## **A Holistic Framework For Inclusive Research and Pedagogy**

*Ann Gagné*

By the end of this workshop participants will be able to:

- Identify inclusivity gaps in their research and pedagogical practices
- Outline possible opportunities for cross-disciplinary collaboration in their institution to ensure inclusive research practices

This workshop will look at supporting SoTL research and pedagogical praxis through an inclusive holistic lens. It will frame the training needed for instructors in terms of accessibility, universal design for learning, and universal instructional design in creating research questions that align with curriculum and learning outcomes. There is a need to centre the multiple meanings of access when we perform research; when inclusion frames our work, accessibility and diversity become part of rigorous practice instead of an additional consideration. This workshop will reinforce the importance of cross-disciplinary dialogue between institutional faculties and service areas in developing research which can in turn influence policy and inform or support administrative goals. This research and pedagogical praxis provides educational stewardship in post-secondary institutions in Ontario to assist in attaining 2025 accessibility goals. The workshop will include role-play scenarios where participants will leave with a tangible resource to frame their practice. The workshop will use Mentimeter to inform workshop discussion and activities.

## **Framing Student Success: Enhance Course Learning Outcomes with the Framework for Information Literacy**

*Nicole Doro, Anna Flak & Ariel Stables-Kennedy*

A central challenge of teaching in an information society is to prepare students for learning, living, and succeeding in a dynamic, messy, and sometimes tumultuous information landscape. Founded in principles of constructivism and active learning theory, information literacy education aims to equip students with the cross-disciplinary, metacognitive skills required of to use a variety of information sources to increase their understanding of a specific area of curriculum. By explicitly integrating the research process into teaching, instructors can guide students towards deeper learning through inquiry, making connections between their world and the curriculum, and critical thinking.

The Association of College and Research Libraries' Framework for Information Literacy in Higher Education is North America's most widely used model for information literacy education. This session, presented by three McMaster University Librarians, will begin with an introduction to the model and progress through activities related to each of the foundational pillars of the Framework: Authority is Constructed and Contextual; Information Creation as Process; Information has Value; Research as Inquiry; Scholarship as Conversation; Searching as Strategic Exploration. Participants can expect to leave the workshop with strategies to identify opportunities to integrate information literacy across subjects areas and strategies to identify and address information literacy gaps in the classroom.

## **Transcending Boundaries: Utilizing Universal Design for Learning to Facilitate Inclusive Teaching Across the Disciplines**

*Ameera Ali*

In the same way that teaching brings students and educators together, it can also precipitate bridges between disciplinary rifts. In line with this conference's theme on disciplinary connection, this workshop views teaching from disciplinary, multidisciplinary, and interdisciplinary perspectives and, as such, will discuss how to foster equity, diversity, and inclusion within and across disciplines. In this workshop participants will collectively define inclusive teaching, become familiar with the tenets of Universal Design for Learning (UDL)—a framework for inclusive and accessible teaching and learning— and discuss how to implement these principles in university classrooms through pedagogy and praxis to create more inclusive and accessible educational spaces. Participants will consider hypothetical scenarios of teaching-related issues related to inclusivity and accessibility that they may encounter based upon the discipline in which they teach, and will cooperatively brainstorm strategies to navigate these scenarios through a UDL lens. The workshop will conclude by discussing some challenges they may also face when implementing UDL in their classrooms and how to mitigate these. With the term 'universal' directly embedded within its name, UDL underscores how its approach may be used in both a discipline-specific manner and also across disciplinary boundaries. As such, participants will develop inclusive teaching strategies that can be used both within and

across their disciplinary engagements. Further to the term ‘universal’, this workshop will also consider the true ‘universality’ of UDL regarding its limitations and the ways it may sometimes benefit some students at the expense of others.

## **Making Meaning in Partnership: The Role of Language in Our Understanding of Students as Partners**

*Paige McKenny*

At the recent International Students as Partners Institute (ISaPI), many conversations addressed the challenge of accounting for the nuance within the notion of “partnership” in Students as Partners (SaP) work. This nuance has led to questions about the nature of partnership, who it includes and what it entails (Cook-Sather et al. 2018). Many practitioners of SaP use Healey, Flint and Harrington’s (2014) definition of partnership as “a relationship in which all involved [...] are actively engaged in and stand to gain from the process of learning and working together,” however, In their systematic literature review of SaP, Mercer-Mapstone, et al. (2016) note that there is room for “deeper consideration around the language of SaP” to better elucidate the understanding “partnership”. Systemic Functional Linguistics (SFL) is a theoretical approach that analyzes linguistic choices in context to uncover ways that meaning is made (Eggins, 2007). SFL provides a framework to address questions about the contribution of text-based descriptions to disciplinary meaning making (Coffin & Donohue, 2012). Through an SFL analysis of several sections of the McMaster Student Partners Program Guidebook (Cockcroft et al., 2018), the current paper will begin unpacking the notion of partnership at the level of language and lay the foundation for a comparative analysis of the language used in SaP materials across institutions. This work will provide a new approach to understand how language structures our understanding of partnership

## **Understanding the interdisciplinary experiences of trainees in the McMaster Institute for Research on Aging**

*Tara Kajaks, Emily Dunford, Anna Garnett, Kelsey Harvey, Stephanie Hatzifilalithis, Michael Kalu, Audrey Patocs, Ruheena Sangrar, Rachel Weldrick, P.J. White & Andrew Costa*

The McMaster Institute for Research on Aging (MIRA) has a mandate to train and build capacity among students and post-doctoral fellows who have a shared interest in research on aging. An important focus of this initiative is fostering interdisciplinary collaboration in a non-formal learning environment through the trainee-governed MIRA trainee network. As the network completes its second year of operation, trainee feedback is needed to ensure the network remains a valuable opportunity for trainees of all levels and faculty associations. Eight network trainees, along with two faculty and one staff mentor, are surveying current and former trainees (n = 182) to understand the training and interdisciplinary experiences within the network. Preliminary data (n = 29) show that 93% of trainees felt that interdisciplinarity is valuable to their research outcomes and career objectives. Most trainees had positive (30%) or somewhat positive (33%)

interdisciplinary collaborative experiences, while others had “neutral” (30%) or somewhat negative (4%) experiences. 28% of trainees reported supportive factors for the adoption of an interdisciplinary research approach within their research setting, including having an “open supervisor” and “top down communication of the importance of interdisciplinary work” while barriers were reported by 41% of trainees. Barriers included: working in “isolated environments”, “silo attitudes”, limited networks, disciplinary methodological differences, and “time constraints”. The survey data will help ensure the highest level of training and capacity building is offered by MIRA. Conference attendees will be presented with a case study and asked to reflect on the challenges and benefits of interdisciplinary research

## **Student Tutors Leaders in the Writing Centre: How Undergraduate Peer Tutors Become Partners and Leaders in Teaching and Learning Practice and Centre Direction**

*Caitie MacDonald & Mandy Penney*

Writing Centre scholarship and practice has long valued the contributions of undergraduate students, especially centres that employ peer undergraduate tutors in either paid or volunteer positions. Research has shown that by having tutors from varied interdisciplinary backgrounds the needs of students can be more widely met. (Weissbach & Pflueger, 2018) Peer tutors who partner with other student learners to support writing and communication development within and across disciplines are able to flatten hierarchies in teaching and learning and create a safe space for creative play, learning, and practice. (Bleakney, 2018) At Huron University College, peer tutors receive rigorous training for their experiential learning positions (which includes one- to-one tutoring and reflective components) and are given a high degree of agency in developing the direction of the centre and its practices. My research question is the following: how does engaging student tutors as partners in a writing centre context affect the teaching practice and student learner experience in a unit where success is often measured by increased student confidence in writing, as well as a greater understanding of the writing process and importance of feedback? My ultimate goal is to review the relevant research on writing centre pedagogy and practice in the context of student tutors and use a mixed-methods approach to assess student writing confidence and understanding among undergraduate students at Huron. During this session, I will seek feedback on my research question, survey design and their experience with undergraduate peer tutors.

## **A Study of Teacher Formation in a Writing in the Disciplines Program**

*Andrea L. Williams*

In North America Graduate Teaching Assistants (GTAs) play a key role in teaching writing across the disciplines. They are often unofficial writing instructors who directly engage with student writers through response and assessment. However, little research examines the training these future faculty members receive and its impact on their

academic identities. The role of disciplinary GTAs in writing programs has been examined (Hedengren 2001 and 2004, Zawacki 2008, Rodrigue 2012 and 2013), but little focuses on training and professional identity—its primary concern is pedagogical and/or curricular.

This presentation reports on a study of teacher formation in a WAC program situated in a large, research-intensive university where doctoral students do much of the discipline-specific writing instruction in undergraduate courses. After an orientation to writing pedagogy under the supervision of a writing specialist, TAs consult with faculty on curriculum development and assignment design, and train and support regular course TAs who evaluate student writing and integrate writing activities into labs and tutorials. Drawing on semi-structured interviews with 20 former participants, this paper explores the program's impact on these developing teachers' conceptions of teaching of writing. Working in the program's multidisciplinary cohort prompted participants to see the teaching of writing as inextricably linked to the teaching of disciplinary knowledge. They came to see writing as a tool for teaching and learning, rather than merely a tool for evaluation. Moreover, participation in the program led many to reconceive their career plans, prioritizing teaching over research.

## **Assessing our assessments: A test archive and analysis system for first-year chemistry**

*Sharonna Greenberg, Elvin Girineza, Paul J. Berti, Linda J. M. Davis, Brian Nairn & Melec Zeadin*

We are creating a test archive and analysis system (TAAS) to track the quality of assessments by incorporating measurements of students' performance. Constructing the TAAS will accomplish two goals: (1) help instructors design fair and predictable assessments, and (2) inform our use of utilize class time and educational resources. The TAAS is applicable across disciplines, to any large-enrollment course with multiple choice testing.

Towns (2014) highlights best practices in multiple choice testing, including content guidelines, item writing, and item analysis. DiBattista and Kurzawa's (2011) investigation of item analysis in multiple choice assessments across many disciplines showed considerable room for improvement.

We aim to address two research questions: (1) Can we improve the quality of multiple-choice assessments by systematically analyzing historical data? (2) Can we improve our use of class time and additional resources to address challenging topics? Towards our first research question, we have constructed the TAAS and begun incorporating metadata. Towards our second research question, we have begun adjusting our use of class time and surveying our students through surveys and focus groups. This poster will highlight our preliminary results.

Future directions include sharing the TAAS across disciplines and developing it into a low-stakes formative assessment tool to improve students' metacognitive skills and empower them to think critically about their own learning and problem-solving skills.

## **Investigating Feelings While Being Reviewed: Lessons for Educational Leaders in Quality Assurance Processes (IQAP)**

*Lori Goff & Erin Aspenlieder*

We are administrators and educational developers who have a combined decade of experience in guiding the process of academic program review (IQAP). Having provided support from the micro level of individual consultations through to the meso level of curriculum maps and program learning outcome articulation through to the macro level of revising institutional policy on academic program review (Friberg, 2016; Simmons, 2016; Wuetherick & Yu, 2016), you might think that we would be prepared for an external review of our own teaching and learning centre, the MacPherson Institute. And while we did have much knowledge of processes and policy (Ellis et al., 2018), the experience of *being reviewed* revealed to us the affective dimensions of external review previously unknown to us, as well as the disorienting and unsettling experience that being reviewed can generate both for ourselves and for our team.

In this session we share results of an autoethnographic study on the experience of being subjects in an external review. Moreover, we offer insight into how administrators and educators who intersect with academic program reviews (e.g. IQAP) might give more attention to the affective domain and the philosophical values that underpin this experience. Our session includes opportunities for participants to reflect on their own experiences in review processes, and to ask questions about application of ideas to their contexts.

## **Leveling the Playing Field with Instructional Videos**

*Dr. Rashid Abu-Ghazalah, Greg Van Gastel, Saif Syed & Michael Agnew*

In the Bachelor of Technology program at McMaster University, there is no prerequisite for incoming students to enroll in a first-year biology course that is part of the program's Biotechnology stream. Those with an established background in biology, and those without, form two distinct sets in terms of comfort level and performance in the course. This, in turn, has led to a notable disparity in the students' educational foundations which impacts their future studies in the second year of the program. To create more opportunities for rich, equitable, and inclusive learning experiences, the instructor has redesigned the course to include flipped learning components, extending opportunities for learning beyond the boundaries of the classroom through the use of online tools (Karabulut-Ilgü, Cherrez & Jähren, 2018; Velegol, Zappe & Mahoney, 2015). Each week, students now have additional content resources (online supplemental videos produced by the instructor, articles/readings, etc.) from which to learn and/or reinforce concepts independently, with additional class time devoted to group work and to reviewing the material with the instructor. This session will report research findings from data collected during the first year of the course redesign and will invite participants to engage in a facilitated discussion about strategies for dissolving boundaries and bridging the gap between students with different educational foundations.

## **Transition from Paper Based Portfolio to e-Portfolio: First Reactions of Students and Faculty Members**

*Dr. Yusuf Yilmaz, Dr. Ozlem Midik & Dr. Servet Aker*

**Introduction:** e-Portfolios confer a number of advantages including decreased environmental burden, increased efficiency, and instantaneous archival. However, transitioning faculty and students to e-platforms can be difficult because of issues around familiarity and comfort with the technology. Few institutional implementations of new e-Portfolio systems incorporate the student and faculty experience into the transition process. We sought to understand the experiences of these stakeholders during a transition from a paper to e-Portfolio system.

**Methods:** Researchers designed the ePort using Moodle for four elective courses. A pilot study took place in June 2019 with 23 students and 58 faculty. We developed feedback questionnaires for students and faculty that includes Likert-scale items and open-ended questions. Students completed tasks on ePort, and filled out the questionnaire. Faculty attended a two-hour workshop demonstrating how to use ePort, and filled out the questionnaire.

**Results:** Majority of students found the ePort easy to use, fun, practical, time saving, economic, and ubiquitous compared to paper-based portfolio. Some students also reported technical issues such as large video upload limits on system, and novelty of ePort. Most of the faculty members also found the system easy to use, practical and time saving. All participants mentioned the convenience of the ePort and not having to physically print and carry around documents.

**Conclusion:** ePort is a cost-effective tool for e-portfolio. Faculty and students easily adapted to the system. Feedback was utilized to improve and implement ePort into the curriculum for 2019-2020 academic year. Data collection is currently in progress for wide use applications.

## **Using Different Fidelity Types of Hybrid Simulation in the Development of Intravenous Therapy Management Skills in Nursing Students**

*Derya Uzelli Yilmaz & Dilek Sari*

**Introduction:** Initiating, maintaining and completion of intravenous therapy is one of the basic skills that nursing students need to gain and can lead to intravenous (IV) fluid therapy complications if not performed correctly. The aim of the study was to investigate the effect of using different fidelity types of hybrid simulation in developing intravenous therapy management.

**Materials and Methods:** The study was randomized, and the sample consisted of 62 first year nursing students. The high fidelity group (n=31) performed the simulation with a

standardized patient and moulage. The low fidelity group (n=31) performed the same simulation scenarios with a mannequin and photo images.

**Results:** After the simulation training, there was a statistically significant difference between groups in terms of knowledge of intravenous therapy management, satisfaction and self-confidence levels, clinical intravenous catheter insertion skills score and the clinical decision making ability to diagnose intravenous therapy complications on real patients.

**Conclusion:** High fidelity hybrid simulations are shown to be effective educational approaches in developing intravenous therapy management. Also the results show that creating an effective simulation environment in simulation had a positive effect on the development of the students' clinical skills and clinical decision making.

## **Approaches to Diversifying and Decolonizing Course Content in Global Health**

*Yimeng Wang & Deborah DiLiberto*

In this session we will focus on the work that has been accomplished through a student-faculty partnership project focused on increasing diversity of subject matter and author representation on the reading list of a graduate-level interdisciplinary global health research methods course at McMaster University. Diversity of reading lists is important in providing scholars from marginalized communities with a platform to share their perspectives and to fostering a more inclusive environment within classrooms. We aim to understand how increasing diversity and representation of the reading list contributes to the course objective of examining research methodologies within the context of overlapping disciplinary boundaries.

With the project currently a work-in-progress, we will focus on the decisions and challenges that were made to create a manageable scope for the project, and the limitations and further work that this necessarily mandates. We will look at how the results of this project may provide a basis for other courses to assess the diversity of their reading lists.

We are likewise interested in considerations for moving beyond the reading list towards engaging in the project of decolonizing the classroom, especially given the historical context around global health conditions and traditional research methodologies. This requires that we recognize the implications of doing this type of work within an institution founded on violence and oppression. We will consider further changes that should be implemented to ensure that we engage in moving towards more decolonial practices that ultimately create safer and more equitable learning environments.

## **Student Perspectives on Faculty Diversity**

*Nya Wuol*

The purpose of this study is to explore student perspectives on faculty diversity and representation; we wish to evaluate whether students express these concerns by writing articles or opinion pieces in their University's student newspaper. We systematically examined student newspapers from 15 research intensive Canadian institutions. Keywords used in the search process included: faculty diversity, lack of representation, racist professor(s), Indigenous faculty, black faculty, Asian faculty, lack of faculty diversity. Articles, posts, and opinion pieces regarding these keywords were examined. The systematic search and review of student articles and commentary provided insight into how students feel about diversity, inclusion, and representation within their faculty. Diversity and representation in faculty members in Canadian universities is a concern expressed by students through the medium of the University's student newspaper. Furthermore, the articles and opinions posted by students in their school's newspapers suggest that these issues warrant further consideration and action by university administrators and decision-makers of faculty hiring. This presentation aims to shed light on our findings that faculty representation matters in higher education. Regarding academic literature on faculty diversity, from my findings the literature discusses the socio-economic barriers that impact racialized people from pursuing and completing post graduate studies. As well as the issues with the hiring practices within these academic institutions, and how those barriers are linked to the lack of diversity within academia. Although this literature discusses the reasoning for the lack of diversity, I was more concerned with looking at student perspectives and if they feel this matter should be addressed. Looking at student newspapers where student voices are being published was a sufficient way for me to get an idea of whether students are concerned about faculty diversity.

## **Found in Translation: Shining Gems L2 Learners Bring to Creative Nonfiction Narrative Writing**

*Dr. John Currie, Monika Krizic & Melina Saliba*

For years I have wanted to better support L2 learners—students writing in a nonnative language (Cook, 2002). WRI 203 Expressive Writing is an introductory creative nonfiction class at the University of Toronto Mississauga (UTM) in the Professional Writing and Communication (PWC) program. Our team of myself and two undergraduate students designed and implemented an intervention in which five L2 students taking WRI 203 met with upper-year PWC students for one-on-one weekly writing mentoring sessions over the summer term. We wondered: *What specific elements do L2 students bring to creative nonfiction writing that makes their contributions unique?*

What we found unique about our group is what we call their “new language,” how their native tongue takes on a personality that shines through in narrative writing. Something so mundane as turning off a phone alarm is given a new life: “My finger stabs the phone to stop it from crying.” The author manages to evoke an incredible amount of emotion in

a confined space. “The bed sleeps peacefully like a giant curled in a tiny room. The mattress springs snore.” This style throughout the five students’ writing allows for a great deal of character and voice in their writing through these phrases.

We question the idea that L2 writing is inherently flawed. Writers strive to reimagine, reinvent and revise. With our research we’ve learned that it’s just as important to look at what’s in front of us; to not see a language barrier, but a bridge to new ideas.

## **“How Comes?” and Outcomes of Community Engaged Teaching and Learning: Unique Contributions to Undergraduate and Graduate Student Learning at the University of Guelph**

*Dr. Mavis Morton, Dr. Jeji Varghese & Lindsey Thomson*

Our research investigates the impacts of community engaged teaching and learning (CETL) on intended and unintended learning outcomes in the context of undergraduate and graduate courses at the University of Guelph.

CETL is a form of experiential learning and a high impact educational practice (Kuh, 2008). In building upon previous literature and for the purposes of our own research, we define CETL as “a teaching and learning pedagogy that meaningfully integrates community engagement and curricular programming with intentional alignment between course learning outcomes and community identified needs. CETL involves mutually beneficial collaboration for the purposes of co-learning and co-creating relevant scholarship or scholarly activity that strengthens academic inquiry, personal & professional development and contributes to positive social change/justice” (Morton, Varghese, & Thomson, unpublished manuscript).

Our research investigates the unique contributions of CETL to student learning in relation to intended and unintended learning outcomes (LOs):

1. What LOs were achieved with CETL, with respect to knowledge, skills and values?
2. Does CETL contribute to the fulfillment of LOs in each specific course? If so, in what ways?
3. How well do students’ anticipated LOs align with achieved LOs?
4. How well do achieved LOs align with intended LOs established by the course instructor?

Findings from our research provide insights into the unique contributions of CETL to student learning across knowledge, skills, and values and provide direction for future research in CETL.

## **The Wikipedia Assignment: An Experiential Approach to Developing 21st Century Transferable Employability Skills**

*Dr. Nicola Simmons*

While content is important, transferable process skills such as critical thinking, problem-solving, self-guided inquiry, and the appropriate use of resources are essential skills in this century (Simmons, 2013). However, Heil (2005) notes that students often take the route that yields the quickest information, foregoing academic journals and scholarly databases in favour of websites and Wikipedia. In addition, in 2010, Wesch questioned professors' roles in providing information and students' roles in knowledge creation. This caused me to think deeply about social construction and critique of knowledge and what form of experiential learning might be embedded in a graduate entry course. It led me to ask my graduate students to locate an education-relevant Wikipedia page and critique it, discuss its strengths and limitations, implement their recommendations for improvement, and write short reflective papers about what they learned. Themes in these papers included assignment challenges, 'peer' pressure online, Wikipedia as a scholarly source, and meta-cognition about knowledge use and creation; students developed critical thinking and literacy skills and scholarly identity. These themes suggested the assignment might be contributing more to graduate student outcomes than I had anticipated. I invite you to consider the Phase II data about how the Graduate Degree Level Expectations (GDLEs)(OUCQA, 2019) and The Conference Board of Canada's (2018) *Employability Skills*, are developed through the Wikipedia assignment. In small and large groups, we will explore the paradigm shifts resulting from this experiential assignment and consider assignment design principles that can be applied to other contexts.

## **High Impact Learning Practices to facilitate interdisciplinary thinking in Global Health Research**

*Danielle Denwood & Deborah DiLiberto*

The McMaster University Master of Science Global Health program developed an innovative course that engages students in approaches to global health research that examine complex issues within the context of overlapping disciplinary boundaries. The course, Research Methods: A Global Perspective, explores methodological perspectives in global health and how these shape research practices aiming to address pressing health care problems worldwide. Research on global health education has focused mainly on pedagogical considerations for teaching international medical electives with a strong focus on biomedicine and service provision. There is limited focus on strategies which include high impact learning practices, as they relate to teaching global health research competencies, and developing interdisciplinary thinking. As disciplinary connection is a defining feature of research, taking an interdisciplinary approach to research methodologies develops student's ability to think critically about the complex issues underpinning global health. We conducted a mixed-methods study to assess the extent to which the design and delivery of the course content and learning strategies achieved the aim of developing students' interdisciplinary critical thinking and research

competencies. Focus groups and student essays were used to examine students' perspective on the course objectives content and learning practices, and results demonstrated an overall effectiveness of our approach. We will demonstrate our approach in utilizing high impact learning practices to support students' transformative learning and engagement with the course content and their perception of interdisciplinary thinking in global health research.

## **Exploring the Benefits and Challenges of Incorporating Video Feedback in a Digital Technology Course**

*Brandon Sabourin*

This SOTL research project is exploring the benefits, challenges, and perceived effectiveness of using video feedback in higher education. Feedback is itself a vital part of the teaching and learning process. Carless and Boud (2018) agree, and further suggest that postsecondary students need to develop “feedback literacy” (p. 1315), which includes the function of, and response to, various forms of feedback. Henderson and Phillips (2015) suggest that video feedback results in a number of advantages for both the student and the instructor, including a more personalized approach, more timely practice, and more specific examples of positive and negative aspect of student work.

This year, I am teaching two sections of a year-long digital technology course for pre-service teachers. In this course, students complete various digital and multimodal assignments—including video responses using *Flipgrid*. In years past, I have provided students in this course with detailed written feedback, comments, and completed marking rubrics. This year, however, I have committed to using exclusively individual video feedback (through Blackboard) and completed rubrics.

In this presentation, I will unpack the design of my video feedback process by deconstructing some examples to illustrate the function of my feedback. I will also provide insight into experiences during the first semester of the project, revealing excerpts of my reflective journaling on the video feedback process and comments from students. The goal of this session is for participants to be able to assess whether video feedback might be a useful practice to enhance their own teaching practice.

## **Are Western Active Learning Spaces (WALS) Worth the Investment?**

*Katelyn Marchiori & Dr. Sarah McLean*

Although active learning is coming to the forefront of education, the physical infrastructure of classrooms has been slow to change. Certain institutions have recently developed active learning spaces. Previous studies have shown that students perceive active learning spaces as more engaging than traditional lecture spaces; however, the effect of learning spaces on transferable skill development, has not yet been investigated. A medical science course will be taught in two different settings, a Western

active learning space (WALS) and a fixed-row classroom, by the same instructor. Students will start in the fixed-row classroom and at the midpoint of the term will switch to a WALS. This study utilizes an explanatory sequential mixed-methods approach to collect data. Quantitative data will be collected first in the form of Likert surveys and classroom observation, followed by qualitative data collection in the form of focus groups. Students will be observed using a previously validated instrument (COPUS) and will be asked to complete three different Likert-style surveys throughout the term. Based on previous findings, we predict that students will prefer being taught in the WALS and will perceive their communication skills have improved after being taught in the WALS. In addition, we believe that students will perceive that the WALS will have a higher impact on student learning than the fixed-row classroom and that students will engage in more active learning in the WALS. Thus, the main objective of the proposed study is to evaluate the efficacy of WALS, in supporting student development of effective communication as a transferable skill.

## **A design thinking exploration of the online graduate education experience: Empathy and beyond**

*Asiana Elma, Lawrence Grierson & Ilana Bayer*

A design thinking approach is used to explore user experience and to inform areas for improvement and enhancement in the online Health Sciences Education Graduate Program at McMaster University. This human-centered design process engages end-users (i.e., student, faculty, or staff) at the centre of design decisions. The core stages of this approach describe processes that empathize, define, ideate, prototype, and test. In the empathize stage, data were gathered from a one-course pilot study, student focus groups, and a facilitated program retreat, and used to create empathic concept maps of user experience. The themes arising from these maps included connections, communication, support, and workload management. These themes will guide the collation of additional data, which will provide deeper insight into the needs, emotions, challenges, and opportunities experienced by users of this online graduate program. Following completion of the empathize stage, the next steps will be to identify the meaningful opportunities for enhancement, and to prototype and test innovative solutions. In this session, we will discuss principles and methodology of design thinking and how it can be used in an educational context. We will also discuss user engagement strategies and team collaboration, strategies for data collection, lessons learned, and how the process may apply to participants' work.

## **Trials and Tribulations of Creating an eLearning Module**

*Linda Mayhew, Aiman Shahid, Quintin Charette & Risa Bordman*

Medical Educators have many demands on their time and attending Faculty Development sessions can be challenging. Technology offers a promising solution to engage distributed Faculty. We developed an online self-learning module for refresher training of

Faculty in small group facilitation. The objective of this session is to explore the benefits and challenges of module creation, outline the necessary steps and discuss lessons learned. Universal difficulties including keeping the module up to date and increasing end-user uptake will be discussed. Our experience with finding and hosting a Learning Management System (LMS) at McMaster that can be used by Faculty across Canada will be reviewed. This session will highlight the benefits of building an evaluation and feedback component into the module development. Audience members will be invited to participate by sharing their experiences with both using and developing an eLearning module and working with an LMS. Short video clips and interactive software will be used to engage auditory and visual learning. By the end of the session participants will be able to identify the trials and tribulations of developing and disseminating an eLearning module.

## **Mental Health & Well-Being for Students: It Starts with the Syllabus**

*Fiona Rawle & Ann Gagné*

Mental health and well-being of students and faculty should be a consideration of academic course design. The purpose of this session is to highlight how forward-thinking syllabus design can be cognizant of, and potentially improve, the mental health and well-being of both students and faculty. Specifically, we will explore how syllabus design can be used to: address “pinch points of stress” during the academic term; embed time-management training; assist students with overcoming procrastination; scaffold both formative and summative assessments; have built-in time for reflection; and decrease the administrative load of teaching large classes. We will also explore recent research on the “emotional and cognitive load of teaching” and how we can be observant of this in our syllabus design across disciplines. We will review best practices for syllabus statements, and provide exemplars and syllabus maps for participants to keep as resources. Some of the examples include “student-facing syllabi” as well as “faculty-facing syllabi.”

## **Democratization of Business School Education**

*Frances Tuer & Andrew Lee*

Spearheaded by Paulo Friere in 1968 and continued by figures like Peter McLaren and Henry Giroux through the 80's, the philosophy of decentralizing power in the classroom and critical pedagogy have become increasingly popular in recent years. While the literature on democratization suggests a number of benefits, dissemination of the practice of democratization within a program/faculty has not been examined. This project looks to examine the nature and scale of democratization in undergraduate business classes through a review of course syllabi to understand factors/conditions that are associated with higher levels of democratization and to identify potential ways to measure the impact of democratization on student learning and instructor assessment.

## **Politicizing Self-Advocacy: Improving Access to Learning through Disabled Student Workshops**

*Emunah Woolf & Alise de Bie*

Disabled students on university campuses are often described - in academic literature and on campus - as lacking self-advocacy skills, and thus individually responsabilized for negotiating an inaccessible institution. This study aims to intervene on this message and politicize self-advocacy by: (1) interviewing disabled students about their perspectives on and experiences with self-advocacy, and recommendations for how they might be better supported in this work and (2) developing a series of disabled student self-advocacy workshops that counter pathologizing narratives and recognize that having to self-advocate for accommodations is unideal and the onus should be on the university to be more accessible. Given the way that the accommodation system works, students need self-advocacy skills to succeed. Having the opportunity to develop these skills in an intentionally political environment informed by other disabled student experiences will create a space that validates their experiences. This presentation will overview and critique the existing scholarship on disabled student self-advocacy and share preliminary findings from student interviews, highlighting recommendations that students offer for faculty development. It will also identify emergent key themes that are essential for politicized self-advocacy workshops - and other mechanisms for supporting disabled students - to incorporate. Initiated and led by a student with support from a faculty partner, this presentation emphasizes why student involvement in higher education and pedagogical research is essential for depathologizing disabled students and focusing attention on wider systemic barriers.

## **The Impact of Second Language Learning on Adult Immigrants' Identities**

*Fernanda C. A. Batista*

There have been an expansion and a transformation of immigration flows in the world in the last few decades: the number of permanent migrants rose from less than a million people a year between the mid-1950s and the mid-1970s to over 4 million in 2009, and Europeans were replaced by Asians, Africans and Latin Americans as the major immigrant population (Shan & Guo, 2013), a configuration that continues until the present day. Some consequences of this large movement are greater encounters with differences and an increase in the number of studies focused on acculturation and assimilation as well as on immigrants' work and learning experiences. This research focused on the question "what is identity?" to explore the relationship between language and identity and the impact that learning the language of the host country can have on adult immigrant learners' identities. Its aim was to inform second language teachers of the role they can play in that process by understanding that students learn in different ways and valuing learners' backgrounds as well as previous life experiences to promote intrinsic motivation and meaningful interaction in their classes. In the findings, it was argued that identity is an agentic, complex, and strategic process that can be changed according to the

situation in which the social actor is performing, and that it is shaped by language along with other social practices (Hall & Bucholtz, 2004). The presentation of these research findings will include direct instruction as well as small group and whole group discussions.

## **Equitable International Educational Partnerships: Lessons and Reflections of Teaching a Short-Course On Glacial Sedimentology in Perú & the Cultural and Place-Based Considerations Taken.**

*Rodrigo Narro Perez, John Maclachlan & Rebecca Lee*

Internationalization in higher education is often directed towards bringing 'international' or 'global' experiences outside a student's institution country of study. An understudied aspect of internationalization is capacity building from institutions in the Global North to students at partner institutions, often those found in the Global South. A five-day short-course run was offered by McMaster University (Hamilton, Canada), as part of an existing international research partnership at a national research institute in Huaraz, Perú. The aim of this short course was to introduce glacial sedimentology and associated surface processes to a group of 30 participants who had minimal background in the subject but were all environmental, geological or hydrologic engineers.

This paper will highlight the experiences of the instructional team as they planned, executed and reflected on teaching this non-for-credit geoscience short-course to a group of professionals whose first language was not English while the majority of the instruction was done in English. Attention will be paid to the following themes: language considerations (one of the instructor's being a Peruvian born fluent Spanish-speaker); a place-based educational approach to the cultural and societal considerations taken when constructing the lessons in the short-course; and ensuring students gained the necessary technical geoscience skills. Mid-course and post-course surveys were issued to gauge student engagement and thoughts on the teaching and delivery. The majority of the students communicated a positive learning experience and highlighted the importance of the field experiences as an effective pedagogical tool. There were concerns expressed by some students along the themes of linguistic barriers and length of the course.

Summarization of the lessons learned from this experience will assist other international partnerships wanting to implement similar style short courses, in particular the capacity to build a truly equitable international partnership will be discussed. Attention to team-teaching, linguistic barriers, cultural and societal considerations, and the importance of field days are highlighted as important considerations.

## **Risk and trust in higher education inquiry-based learning environments: Student and faculty experiences.**

*Dr. Beth Archer-Kuhn & Dr. Stacey L. MacKinnon*

Risk and trust are necessary components of engaged pedagogy, however, research on how to develop trust in intellectually risky higher education settings is sparse. Unique circumstances in higher education make the quick and meaningful development of trust a necessary but challenging condition for university students to take risks in the classroom. In this session, the audience will be asked to consider and engage with the questions: 1) How do you create a trusting learning environment between students and professors in high risk learning situations?; 2) How does the learning environment need to be modified for students at varying levels of perceived power to develop trust?; and, 3) How do the “stakes” involved influence students’ and professors’ levels of trust. During this discussion, we will share the findings of our own grounded theory study including issues of power, ownership of learning, modeling being curious/becoming curious and “being human” as key components to the development of trust in situations of intellectual risk taking as articulated by four focus groups with students and professors who were engaged in the intellectually risky process of curiosity and inquiry-based learning in higher education locally, nationally, and internationally.

We will engage the audience in small groups around the major themes of our findings to discuss how these issues manifest in their classrooms, how they have struggled with and/or dealt with them and propose at least two questions based on these observations that they would like to see addressed in SoTL research.

## **A novel lesson-tracker application enables collection of e-learning analytics without requiring user accounts or login.**

*Dr. Anthony J. Levinson & John Bousfield*

**Background:** The traditional learning management system (LMS) requires user account creation and login for access to – and tracking – of e-learning module metrics. For our iGeriCare dementia caregiver online education initiative, user testing and feedback revealed that caregivers valued the e-learning highly but did not want to create accounts or login for access. For research purposes, though, we wanted to have additional data related to learner engagement with the lessons.

**Objectives:** Our goal was to develop a method to track learner interactions without requiring users to authenticate.

**Methods:** Upon completion of a survey on the final slide of each lesson, data regarding Net Promoter Score (NPS) rating, percentage of slides viewed, and time per lesson were recorded. An administrative dashboard for viewing the data and reports was added.

**Results:** Since its launch, over 2,400 user submissions have been recorded, across the ten iGeriCare lessons. The most popular lesson is *What is Dementia?* with almost 40%

of events. NPS ratings are 'Excellent', ranging from 64-70. Most users who submit data are viewing 100% of the lesson content. The average time spent per lesson is consistent with our initial estimates.

**Discussion:** The tracker application has provided learner-specific analytics in a context where account creation and login were a barrier to access to e-learning. The platform functions without the need for a traditional LMS; and there are no licensing costs or issues with scaling up to large numbers of users, as in public open access e-learning projects.

## **Design of a classroom-based intervention through technology-enhanced activities**

*Xinli Wang & Rubaina Khan*

In mathematics education, calculus has received the most interest and investment in the use of instructional technology. Innovative approaches from programming numerical algorithms in various languages, to use of graphical software has been implemented to explore understanding of calculus concepts. Traditional calculus, prior to the extensive use of technology, focused on building symbolic techniques for differentiation, integration, and the solution of differential equations. These techniques were complemented with appropriate static pictures of graphs to illustrate the phenomena. With current technology, dynamic pictures manipulated by the instructor and students, give deeper insights into concepts. A spectrum of approaches to calculus teaching and learning is available from a human embodied approach to a formal mathematical viewpoint. These approaches incorporate dynamic enactive visualization, conceptual programming, and the pragmatic use of a variety of technological resources. In this presentation, we will present technology-enhanced activities, when employed in a calculus classroom, can lead to enhanced levels of student engagement. Evidence through literature shows mathematics achievement is one of the predictors of retention in post secondary education especially within the science and engineering majors. These classroom-based interventions offer deeper and socially-responsive learning experiences that address students with different learning styles and levels of engagement.

## **Active Learning designs for calculus: A learning community approach for seven-interconnected classrooms**

*Xinli Wang, Yanhong Li, Jim Slotta & Dai Jinjun*

An active learning approach (e.g., flipped classroom) can promote student engagement with mathematics, helping them better understand and use mathematical knowledge both inside and outside of the class. We present a study of active learning in Calculus II, which was conducted across 7 interconnected smart classrooms in China, with a single professor, 8 teaching assistants, and 317 undergraduate students. To help students develop a deep conceptual understanding of mathematics, we investigated four *active learning patterns* that take advantage of the unique affordances of the synchronous smart classrooms, but could be implemented in any active learning course. Guided by the

Knowledge Community and Inquiry (KCI) model, we sought to leverage a large number of students in the overall environment, such that their sheer numbers served as a knowledge resource. Our study also explored (1) how to leverage this unique infrastructure so that all 7 classrooms of students were actively engaged as a single learning community, and (2) how to enable students across all seven classrooms to construct a community knowledge base that serves as a resource for their subsequent learning activities.

## **Investigating Visual Literacy in the Life Sciences**

*Veronica Rodriguez Moncalvo, Abeer Siddiqui, Henry Hsu & Sufera Khan*

Visual literacy is the ability to evaluate, apply, and create visual representations. Ideally, students are introduced to visual literacy progressively for proper skill development. In this presentation, investigators will share findings on how students perceive and value visual literacy development depending on the level of study and exposure to communication-focused courses, as well as how instructors value and approach visual literacy within their courses.

We conducted a cross-sectional study involving a student survey, focus groups, and faculty interviews to understand how visual literacy instruction and evaluation are currently embedded within Life Sciences.

Preliminary results suggest that as students progress throughout the program, they do not perceive themselves as becoming more proficient in the competencies investigated. Greater exposure to communication-intensive courses was not associated with increased self-rated confidence, and students across levels reported lower proficiency in certain competencies.

While students appreciate the opportunity to be creative in visual assessments, they noted that effort required in these assessments is not always acknowledged in the assignment weighting. Some students struggle with instructions and rubrics that allow for creativity, while others cited challenges with using necessary technology. Instructors indicated challenges in assessing student performance in visual literacy skills, and recognized the importance of providing students with appropriate resources.

Preliminary recommendations include curriculum-mapped instruction, assessments, and support resources to improve visual literacy education. These could include careful scaffolding of visual literacy learning objectives as students progress through the program. We will also discuss the expansion of this project to other Faculty of Science programs.

## **Lessons to support learner differences in language classrooms**

*Chantelle Boyles, Conan Hu & Chelsea Whitwell*

Given globalization of employment, learning foreign languages such as Japanese, is becoming popular in universities. Classes include learners with certain language backgrounds who may feel disadvantaged. In order to better support and include the diversity of learners of Japanese, this study examines if emotional support can improve a difficult learning task considering individual differences. Student Partners explore the issues of learner differences and presentation strategy to enhance second language learning via instructional intervention. Previous research in applied linguistics argues for different teaching to learners with different language experiences (e.g., O'Rourke & Zhou, 2018). In this study, learner proficiency on Japanese voice is empirically measured before and after an intervention. During the intervention, learners are explicitly instructed on the linguistic aspects while researchers control emotional scaffolds as either present or absent in the intervention. Furthermore, learners are grouped by native language: English and Mandarin. Since Mandarin orthography is closely related to one of the three Japanese scripts (*Kanji*), we predict that Mandarin speakers will already have an emotional advantage over English speakers due to their familiarity with the script. We explore if this advantage can be leveraged for improved learning. Data collection is ongoing. These results will inform what previous experiences with language are useful to draw on during language learning. Determining if certain types of emotional scaffolds will benefit all learners can improve teaching strategies in language classrooms. Adjusting teaching strategies can improve students' mental well-being in difficult courses, for example Japanese as a foreign language.

## **Understanding the Student Experience in a Non-Traditional, Interdisciplinary, and Multi-Instructor Course**

*Rebecca Collins-Nelsen, Sandeep Raha, Kim Dej, John Maclachlan, Reni Gandhi & Anisha Jahagirdar*

In the fall of 2019, a major research University in Southern Ontario pioneered a course that focused on teaching the best practices for pedagogical design, the principles of community-engagement, and the art of knowledge translation and communication. Given the interdisciplinary nature of this course, it was decided that the students would greatly benefit from a range of instructional perspectives. Thus, this course is set up in a non-traditional way with a multitude of instructors from a variety of disciplinary backgrounds. With this in mind our research asks, how does the plurality of instructors and the interdisciplinary nature of the course shape the learning experience for students? Using qualitative research in the form of focus groups and surveys our research explores the value of multi-instructor and interdisciplinary classrooms from the student perspective. Results from this research will contribute to important contemporary debates on the growing efforts to increase interdisciplinary initiatives in postsecondary institutions and the impact this can have on teaching practices and student experiences. Given that data collection is currently ongoing, findings from this research project will be preliminary at

the time of this conference but can nevertheless inspire interesting conversation and debate related to the themes mentioned above.

## **Using a Students-as-Partners Approach to Facilitate Open Pedagogy in the Classroom**

*Ali Versluis, Justine Tishinsky, Coral Murrant & Kerry Ritchie*

Open pedagogy is premised on the idea of making the teaching and learning process public and visible. By recognizing students as experts in their own learning, instructors implementing open pedagogy allow them to contribute their voices to the larger scholarly conversation, ultimately creating a meaningful, unique classroom experience.

We've implemented open pedagogy in the classroom by enrolling small cohorts of undergraduates in a project-based course, where they were paired up and assigned a unit of Physiology that they had to find, evaluate, and curate openly licensed learning objects for. Though each student has taken Physiology, they come from different disciplines, each lending their unique perspective to the learning process. Envisioned as a multi-year project, subsequent groups of students are beginning to synthesize these objects and ideas, creating thematic content within Pressbooks open publishing software. Throughout the process, students are expected to collaborate with others, present their findings, and reflect on their role as both teachers and learners.

We'll illustrate how this independent study course—designed by a cross-departmental team of faculty members, teaching staff, a librarian, and an instructional designer—has provided a simulated workplace experience in which students must develop skills in professionalism, research, and project management, while also forming an understanding of complex topics such as intellectual property and copyright. After presenting an overview of the project, we'll discuss the possibilities open pedagogy offers in terms of experiential learning opportunities.

Attendees will leave the session with an understanding of open pedagogy and considerations for using it in the classroom

## **Good science makes good stories: Exploring the role of storytelling in science communication**

*Dr. Katie Moisse & Abeer Siddiqui*

Good stories are, by design, memorable, engaging and universal. Communicating science through stories can thus increase the visibility and impact of developments in the field. Science stories, when told effectively, can simplify complex ideas, and invite the general public to participate in the scientific conversation.

The School of Interdisciplinary Science (SIS) librarian and a Life Sciences faculty member have developed and co-teach a fourth-year seminar course exploring the role of

storytelling in communicating science across various cultures and to a wide range of audiences. This course provides students the opportunity to engage with and produce different forms of stories, such as short fiction and non-fiction, children's literature, and podcasts, and consider how they can be used to make scientific knowledge more publicly accessible.

In this presentation, we will share our learning outcomes and instructional strategies, how this course was established, and highlight valuable community partnerships (with oral storytellers, science journalists, comic book artists, etc.). We will describe our approach to course design, and how we assessed (and encouraged!) creativity in our science students through our assignments and rubrics, and by building ample opportunity for peer feedback

## **Exam Wrapper: measuring the impact of metacognitive skills**

*Sohee Kang*

All too often when students receive back a graded test, they focus on a single feature - the score they earned. Some of our students do not even pick their tests up. We expect that critically reviewing an exam could yield useful information to help students grow and develop as independent learners. We introduced exam wrappers designed to assist students in developing metacognitive skills, i.e. knowledge on their own process of acquiring knowledge. Exam wrappers are short writing activities designed to assist students in developing metacognitive skills, i.e. knowledge on their own process of acquiring knowledge. The main goal is to engage students in an effective learning cycle by reflecting on a returned test in order to enhance their own learning process and, as a result, to perform better on future tests and exams. Three main components of an exam wrapper are: 1) reflecting on the test preparation and study habits, 2) highlighting the main difficulties on the returned test, 3) adjusting the study habits accordingly. In this presentation, we share our study to assess the effectiveness of exam wrappers as a tool to enhance the learning process of our students in second university statistics classes.

## **Effects of Role Play on Development of English Vocabulary Acquisition in Adult Refugees**

*Masoumeh Zaare*

Previous work demonstrated that drama can improve oral proficiency and engagement. Generally, study participants have been university students, immigrants, and children. In addition, a few studies have successfully used drama with refugees to promote their sense of belonging or facilitate their adaptation to a new country. However, there is a lack of research on the effect of role play on vocabulary acquisition in adult refugees. Therefore, my research is to fill that gap.

Refugees deal with loss, grief, traumas, and stress. By using drama refugees can have a low-pressure and fun environment for learning a language. I'm planning to investigate the

common and different features of the most relevant papers among different populations of adult ESL learners, university students, and immigrants. I'm going to compare vocabulary gains between the "teacher-led" classroom and one using role play as the instructional technique. I will start with a pre-test of target vocabulary based on the 3000 most frequent words. During the intervention over a period of six months in 24 sessions, I will teach them to use the target vocabulary in everyday scenarios. Then, I will give them a posttest of the target vocabulary. Finally, I will review all transcripts and audio files and compare the target vocabulary used in both classes.

I predict those people who have learned English through drama will be more successful in using the target vocabulary. I hope my findings will contribute to making life better for refugees and helping them integrate into society and find work.

### **VLASTWA: A Vocabulary Learning and Strategy Teaching Web App**

*Siamak Mirzaei, Dr. Trent Lewis, Dr Mirella Wyra, Dr Brett Wilkinson*

Learning new vocabulary is one of the challenges in language learning yet crucial for mastering another language. It is also essential in any discipline or professional field where mastering new terminology is indispensable. The conducted research presents an evaluation of efficacy and usability of a custom-built, targeted and learnable web-based app for teaching an extensively researched vocabulary learning strategy, the keyword method, and for facilitating learning of new vocabulary with the aid of this method. In this experimental study, participants learned to use the keyword method, applied it in learning two sets of new vocabulary and tested the recall of this newly learned vocabulary within the designed app in four different occasions. The effectiveness of the use of the keyword method taught within the app environment was compared to the effectiveness of the use of the traditional keyword method. Results suggest that the app was a preferred and an effective tool in learning new vocabulary. The focus of the session will be on presenting research data/findings with the objective of discussing the results

### **Radiology and Anatomy Knowledge Among Medical Students in a Problem-Based Learning Curriculum**

*Danielle Walker, Natasha Larocque, Senthujan Gunaseelan, Sherif Ramadan, Crystal Fong, Vincent Leung & Stefanie Lee*

**Background:** Until recently, no formal undergraduate radiology curriculum has existed at McMaster University. We performed an assessment of the radiology knowledge of the last graduating class who received no formal radiology teaching. This data will serve as a baseline to gauge the longitudinal impact of a new curriculum, which includes a partnership with the Anatomy Department to improve the teaching of radiologic anatomy.

**Methods:** A 50-question multiple-choice quiz was administered to graduating medical students covering the topics of radiologic anatomy, imaging interpretation and appropriate

imaging ordering. The validated questions were obtained through an international database provided by the Alliance of Medical Student Educators in Radiology (AMSER). The web-based platform used to create/administer the quiz (Radiology ExamWeb) provides detailed statistical analysis on each question; as such, scores of McMaster students could be compared to international results.

**Results:** A total of 172(83.5%) McMaster students completed the quiz. The mean score for McMaster students was 64.5% vs.72.8% (international average) ( $p=0.02$ ). McMaster students had lower scores on the radiologic anatomy (61.0% vs.79.1%;  $p=0.01$ ) and imaging interpretation (51.7% vs.67.4%;  $p=0.04$ ) sections. There was no difference between the groups on the questions involving appropriate imaging ordering (73.8% vs.71.8%;  $p=0.71$ ).

**Conclusion:** This study noted deficiencies in the knowledge of McMaster graduates in the areas of radiologic anatomy and image interpretation. Based on our quiz findings and feedback from student partners, our new curricular initiatives will focus on strengthening these areas. This includes new integrated Radiology-Anatomy lectures that thus far have been well received based on student evaluations.

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## **Size Matters: Evaluating the Effect of Size on Anatomy Learning**

*Jack (Xiaozhi) Yang, Veronica DeYoung, Yuanxin Xue, Amit Nehru, Alexandra Hildebrand, Danielle Brewer-Deluce & Bruce Wainman*

Increasing accessibility of 3D scanning and printing allows for production of highly accurate educational models of virtually any size. With this technological advancement, understanding the ideal model size for learning is a critical step in improving the quality of laboratory instruction offered to students.

In this study, we compared participant learning on four bones of varying anatomical size and features (thoracic vertebra (VE), hemipelvis (HE), sphenoid (SP), and scapula (SC)). Each model was 3D-printed at four different sizes: 50%, 100%, 200% and 400% scale, and participants learned nominal anatomy from two 3D-printed models (VE/HE, or SP/SC) of the same size. They were then tested on the respective real bone specimens followed by a qualitative survey reporting their opinions on the 3D-printed models. Undergraduate students from McMaster University ( $n=120$ ) with no prior anatomy knowledge were randomized across model size and learning order. Pilot results from the 50%, 100%, and 400% VE/HE groups demonstrated that scaled model size affects anatomy learning, however larger model sizes are not necessarily better. The 400% size VE had 34.1% ( $p=0.042$ ) and 17.1% ( $p=0.001$ ) higher relative scores compared to the 50% and 100% size VE, respectively. Although there were no significant differences between HE sizes, our qualitative data also suggest an ideal model size to be easy to hold/rotate and have clear labeling. Thus, dimensional (actual physical) size may be a more important predictor of learning size than model scale. Data collection for the VE/HE 200% group and the SP/SC groups is ongoing.

## **The Impact of 3D Realistic Models on Student Higher Order Skills Development**

*Tamim Fattah, Anahita Bahreini Esfahani, Osama Abdalla, Philopatier El-Sunbaty & Jade Atallah*

Despite the boom in audio-visual technology, studies on the use of animations in biology teaching are rare. Investigations have focused primarily on comparing static images with animated content (e.g. McClean et al., 2005; O'Day, 2006; Stith, 2004), 2D animations with 3D (e.g. Lee, 2013), and their effect on long-term memory retention (e.g. O'Day, 2007; Polk, 2013). Many of these studies have not reached consensus. For instance, O'Day (2007) found long term retention was aided with animations, while Polk (2013) did not. Due to this, further studies on the effects of animations are crucial. One area in particular, the role of animations in developing higher order thinking, has been poorly studied. The few researches conducted have been in non-cell biology fields, such as chemistry (Williamson & Abraham, 1995). Therefore, the purpose of this study was to determine the effects of animations on higher order thinking in molecular biology at the undergraduate level. Our study aims at evaluating student performances on higher-level tasks when exposed to 3D realistic models in cell biology. We hope to share our findings with the education community to help promote the development of evidence-inspired learning and teaching techniques to further student understanding.

## **There's no I in team, so what about me? How students from equity-seeking backgrounds experience team-based learning**

*Aleema Tahir, Nealob Kakar & Catherine Anderson*

Learning in teams has been shown to have many benefits to students, especially to students from minority groups. For example, the literature on Team-Based Learning, Peer Instruction, and the Active-Learning Classroom (Baepler et al., 2016; Beichner et al., 2007; Lorenzo et al., 2006; among others) shows that these teaching methods lead to greater learning than a traditional lecture course for all students, and that the learning gains for women and racialized students are even greater than those for white, male students. Given these findings, active-learning techniques are vitally important in creating equitable learning conditions for students from equity-seeking groups. And yet our experience has revealed that team-based learning can introduce additional barriers for minority students -- barriers that are not addressed in the current literature. This poster presents data from interviews with current and previous students in one active-learning course in social science at a large, research-intensive university. The interviews, conducted by student partners, recount the lived experiences of equity-seeking students, that is, students who have disabilities or mental health needs, who are non-native speakers of English, are members of the 2SLGBTQ+ community, BIPoC, or otherwise marginalized. Our goal is ultimately to refine the course to make it accessible to a diverse body of students, so that all can reap the benefits of team-based learning.

## **Do Teachers embrace eLearning for Faculty Development? Experience with an online training module**

*Linda Mayhew, Aiman Shahid, & Risa Bordman*

Attending Faculty Development offerings in person can be challenging. The Foundation for Medical Practice Education supports medical schools across Canada with facilitated small group learning. Maintaining the skills of about 400 Facilitators countrywide requires a contemporary approach. We developed and evaluated an online module to refresh trained facilitators.

The module curriculum was developed with an emphasis on interactivity. Facilitators were surveyed about their proficiency with technology and their comfort with eLearning. Module Completers and Non-completers were surveyed about barriers and enablers to completing the module. A subset of each group was interviewed to investigate issues in more depth.

140 out of 381 completed the initial survey. 20 people completed the eLearning module for an overall completion rate of 5%. The module had a satisfaction and effectiveness score of 7.5/10. Lack of time was the most significant barrier with respect to who completed the module. Other barriers were not facilitating often enough or no need for further training. Additional factors (location, internet skills, age, gender, etc.) were not significant.

Creating eLearning modules is very labour intensive. During the developmental process working on a dissemination plan may be beneficial. Ideas to increase participation include parsing the module into pieces that could be distributed over time, sending out the refresher just before a Faculty is to lead a session and providing a reward for completion. eLearning modules are one answer to reach disseminated Faculty but they require careful design and active marketing to enhance uptake.

## **Flipping the Classroom to Engage Students in Class Preparation and Learning**

*Mary Ann Fegan*

Might flipping the classroom help to bridge the theory practice gap common to foundational clinical courses in undergraduate nursing education? I asked this question to better understand how students prepare for class and how I might enhance student engagement and higher order learning in the classroom. During a condensed seven-week clinical nursing course, I redesigned and delivered two of eleven classes using a flipped classroom approach. Prior to class, I provided students with a short video with some of the more didactic aspects of foundational knowledge and learning during which they were encouraged to consult their textbook to review charts or diagrams, extract relevant information related to the topic and become familiar with other resources for learning. Through additional content and various active learning activities in the classroom, students were engaged to build upon and further develop their knowledge and

understanding of their nursing practice through direct application and analysis of class content and materials. Post classroom learning activity surveys provided feedback and insight into how students prepared for class and how they experienced the flipped classroom. This poster will share my experience with flipping the classroom and students' feedback on how these activities positively impacted their preparations for class and enhanced their active learning and engagement in the classroom. I will share key challenges and successes experienced while conducting this teaching inquiry project. These key learnings will inform my future pedagogical research.

## **Comparing and Contrasting Entry Pathways into First-year Computer Science**

*Mario Badr, David Liu, Paul Gries & Michelle Craig*

The University of Toronto is introducing a new pathway into computer science directly from high school. One advantage of this new pathway is that students will enter the program as a single cohort, which gives educators more control over the scheduling of courses and, subsequently, course topics. The current plan is to combine traditionally-separated courses in practical programming and theory, so that the topics complement and reinforce each other. One of our research questions is whether this will have a positive impact on student performance. We plan to compare the performance of students in the current pathway to students in the new pathway through a recent and validated concept inventory [2].

We also believe that having students belong to a single cohort will improve their sense of belonging in the Computer Science program. To test this belief, we plan to compare the attitudes of students toward computer science in both pathways (via the Computing Attitudes Survey[1]). Our goal is to measure shifts in attitudes between the beginning and end of the school year. The survey results will give us a sense of several factors, including student confidence, interest, and motivation in computer science.

## **An interdisciplinary method for integrating student perspectives in course design.**

*Mohammed Alnayar, Hunia Bashir, Jingyi Guo, Lili Mollahassani, Khoi Nguyen, Amanda Solaroli & Jade Atallah*

Every student has a unique view on the quality of instruction they receive. Such view can be influenced by factors that are independent on achieved learning and its extent (Greenberger, Lessard, Chen, & Farruggia, 2008). For example, junior students frequently find higher order learning outcomes challenging, and this challenge is often met with a misplaced negative attitude. Addressing these perspectives is of interest as they can influence subsequent learning and overall intellectual development. Typically, a positive perspective is correlated with better academics performance, and vice versa (Wayne, Fortner, Kitzes, Timm, & Kalishman, 2013). Our work explores an interdisciplinary method to examine student perspectives and satisfaction in an

introductory genetics course ( Wirtz & Lovelock, 2016). More specifically, using a business-model approach, the interaction of students with the different course components was mapped, whereby each stage was qualitatively and quantitatively evaluated for its contribution to overall satisfaction. Using such a strategy, our goal was to identify influential student perspective points and potential interventions in an evidence-based manner. As such, we hope to share our progress with the teaching and learning community to promote the proactive inclusion of student perception interventions within course design in higher education.

## **Promoting Soft Skills and Best Practices in Supervision for Technology Students using Synchronous On-line Flipped Classroom Sessions**

*Michael Michalski*

The Management Principles course is delivered in a synchronous on-line modality using Webex software. Students participate in the on-line session remotely. Classes are recorded and used for subsequent review by students for midterm and final exam preparation.

Thirty short videos have been created in collaboration with MacPherson Institute educational technology staff, which convey key elements of each topic. Videos are between six to nine minutes long.

The course follows the “flipped classroom” technique where students are introduced to the learning material before class, with classroom time then being used to deepen understanding through discussion with peers and through case study work experiences.

Students complete their pre-class preparation by viewing two or three short videos on the topics for that week along with selected readings. Students are then directed to complete a short quiz on the pre-class work that they have studied. Students are able to participate in synchronous discussions in class, with a richer knowledge base, due to their pre-class work. Additional student interaction is promoted as small groups apply best practice supervisory principles in a case scenario assignment.

Other technology has been overlaid on this synchronous on-line delivery. Students respond to Instructor polling through a software called mentimeter.com, where they go to a specific website using their laptop or phone. They then enter a code and provide a response. That response is captured on the Webex screen and a word cloud is built as students respond to the question. Discussion ensues from there.

## **Disruptions in Medical Education: Evaluation of Virtual Reality as an Effective Alternative for Traditional OSPEs in Anatomy**

*Alex B. Bak, Abby J. Simms, David Shin, Josh P. Mitchell, Anthony Saraco, Danielle Brewer-Deluce, Alexander K. Ball & Bruce C. Wainman*

Experiential learning in education is resource intensive, particularly in anatomy. The quality of education available may be dependent on external factors such as body donation, prosected cadaver availability, and the monetary and physical infrastructure required to maintain cadaveric specimens, which may pose barriers to learning. To address this, we developed the Virtual Reality Bell Ringer (VRBR) mobile application. This app employs a low-cost Google Cardboard headset to display high-resolution, 3D-stereoscopic images of plastinated models and cadaveric specimens, which may serve as an alternative method for anatomical content delivery and assessment. The question remains if this is an effective testing tool.

We designed a cohort study (N=60) recruiting students who have recently finished a formal anatomy and physiology course within the Faculty of Health Sciences at McMaster University. Our objective was to evaluate the validity and effectiveness of the VRBR app as a technologically enhanced alternative for testing anatomical knowledge. Participants viewed a series of 3D-stereoscopic images, 2D-conventional images, or cadaveric specimens and answered knowledge-based questions validated by point-biserial data. Our initial work has optimized the app to reduce the incidence and influence of cybersickness in viewers. In addition to examining differences in test score between our three participant groups, we also assessed the influence of visuospatial abilities on performance.

Our goal is to determine if VR tools are an effective method of evaluating anatomy performance in low-resource settings. We contend that these methods may be applicable to other disciplines facing similar limitations in being able to provide access to experiential learning.

## **Undergraduate Student-Faculty Research Collaborations: A Case Study of Transformative Learning**

*Christine D. Tsang, Catharine Dishke Hondzel & Deanne van Tol*

The Centre for Undergraduate Research Learning at Huron University College launched an initiative to fund extracurricular research opportunities (Student Fellowships) for undergraduate students. These projects enabled students from diverse disciplinary contexts to conduct independent research projects with the guidance of a faculty mentor. This presentation reviews the findings from a case study of the first four Student Research Fellowship award recipients and their faculty mentors, using the concept of transformative

experience (Heddy & Pugh, 2015) as the lens to conduct a content analysis of participant interviews. We find evidence of substantive dialogue and active collaboration during the Fellowship experience. The students articulated development of specific skills related to research process, connection between theory and practice, as well as personal intellectual and interpersonal gains, which are suggestive of a transformative experience in progress. The design of the Student Research Fellowships as independent student-led projects created opportunities for both disciplinary-embedded and multi-disciplinary research learning experiences for both student researchers and faculty mentors. Although this paper reports on a limited sample, the findings provide insight into the potentially transformative impact of mentored extracurricular undergraduate research experiences in the liberal arts. A key outcome from this case study is the fact that the students desire and seek opportunities for potential transformation, and institutional support for increasing these HIP opportunities benefit students and faculty alike, with the promise of transforming the broader learning community.

## **Learning Through the Eyes of the Beholder: Using Eye Tracking to Understand How Novices Learn Neuroanatomy**

*Angela Nguyen, Beata Cheung, Jessica Saini, Rebecca Leclair, Dr. Jim Lyons, Dr. Bruce Wainman, Dr. Jennifer Heisz & Dr. Danielle Brewer-Deluce*

“Neurophobia” presents a major barrier to student success in learning neuroanatomy. Our previous study suggests that individuals with low working memory capacity (WMC) may benefit from using high-contrast images, though the mechanism behind this improvement is unknown. This study utilized eye-tracking technology to better understand how individuals of varying WMC and expertise study neuroanatomical images.

Undergraduate students without formal anatomical education (n=120) and neuroanatomical experts were given five minutes to study nominal anatomy on four brain slices (either coronal or transverse slices in high or low contrast) and were then tested on their ability to identify learned structures on similar low-contrast images. This procedure was then repeated ensuring all participants were exposed to a set of coronal/transverse and high/low contrast images in a randomized fashion. Eye-tracking data recorded throughout the protocol were then compared to (1) examine the differences in gaze patterns between high and low contrast brain slices for students with varying WMC, and (2) uncover competency-related differences between novices and experts.

Preliminary results suggest that students with high WMC are more accurate in identifying neuroanatomical structures when compared to low WMC students [F(1, 32), p = .088]. Dwell time was a significant predicting factor for accuracy [r(32)=.40, p = .02]. High WMC students fixated longer on neuroanatomical structures when compared to low WMC students [F(1, 32)=6.50, p = .02]. Data collection from expert participants is ongoing.

Overall, these results offer a quantitative measure of how neuroanatomical information is viewed and learned, which may influence future teaching practices in neuroanatomy.

## **Does Mentoring Develop Deep Skills in University Mentors?**

*Joanne Thai, Tanya Bouman & Christopher K. Anand*

**Background:** Universities provide an environment for students to develop their knowledge and technical skills. But arguably, it is just as if not more important, that individuals garner deep skills, such as leadership, teamwork, and communication, that will underlie and serve as a foundation for future success.

**Methodology:** Undergraduates, hired as RAs served as mentors in an internship-style summer camp provided to children in Grades 5-8. Using an abbreviated Design Thinking process, each week teams picked goals and worked in a relay fashion to refine a single multi-player math game (<https://macoutreach.rocks/escapemathisland/>). Surveys and interviews were conducted with each mentor before, during, and after the month-long initiative. Likert-style questions will be analyzed quantitatively and reported as a frequency. Data from the interviews will be coded into categories and analyzed for trends/patterns.

**Discussion/Conclusions:** In a preliminary analysis, we discovered that this exceptionally team-focused and innovative environment helped foster a collaborative, supportive network among the mentors. To learn and teach challenging concepts quickly, the undergraduates needed to work together. They reported during the interviews that this experience taught them the importance and value of teamwork.

## **Experiential Learning – How to Combine Academic and Logistical Criteria for Success**

*Michael deBraga & Adriano Pasquali*

Across institutions of higher learning, Experiential Learning (EL) has become an essential characteristic of the curriculum. A recent survey by the Canadian University Survey Consortium (2018) identified 56% of students in tertiary education as having experienced some form of EL. However, while EL is a targeted goal, some aspects of how to develop EL courses remain difficult to identify, especially if resources to develop EL courses are limited. We describe some strategies that have been used at our institution to both support the logistical framework of running an effective EL program and supporting academic criteria necessary for the development of an effective EL course or program. Examples include: modules for faculty and students aimed at supporting EL and logistical support through the implementation of student bursaries. The logistical support must not be limited to financial initiatives alone, but must also include a support network, in the form of actual human capital, such as an EL support office that can engage with community partners to help with the implementation of an effective EL program. From the academic side, support associated with the development of assessment tools (i.e., pre- & post-surveys), and training in the use of Reflective Practice protocols, must be incorporated into the course or program curriculum in order to provide students and faculty with insight into the effectiveness of the specific EL experience. Our goal is to provide participants

with an overview of how best to support and assess the impact of an EL course on its students.

## **Flexibility and equity in building student-focused undergraduate courses- together with students**

*Reena Patricia Seeger, Hiba Taha, Parnian Tajbakhsh, Bakiza Al Khalili, Maria Papaconstantinou & William Ju*

We have re-examined late penalties and other policies related to assignments and tests that impact student wellness and stress in various courses. We used student-lead course ambassadors, and student feedback prior to the start of the course to change existing policies and practices with the inclusion of forgiveness policies, flexible deadlines, increased numbers of workshops and contact hours as well as flexible evaluation schemes. By altering these policies did we increase the amount of administrative work? Compared to a traditional course we found that there was indeed a significant increase in the amount of work required in these student-designed flexible courses but the retention rates and quality of life indicators from students in these classes were also significantly higher. These results and anonymous anecdotal feedback suggest that these changes, although requiring more work can have a lasting impact on undergraduate student mental health and well-being and that incorporating student suggestions prior to course planning is an ideal format. Both faculty and student views will be presented

## **“It’s like peanut butter and chocolate – each is great, but they’re better together” : fostering graduate teaching development within and across disciplines**

*Dr. Stephanie Verkoeyen & Dr. Erin Allard*

Building on the work of Kenny, Watson, and Watton in 2014, this workshop will provide an updated review of graduate student teaching certificate programs at Canadian universities and consider how this type of interdisciplinary central programming offered through Teaching and Learning Centers/Institutes can be complemented by disciplinary teaching and learning development in departments/schools. The research will examine the increase in the number of graduate student teaching certificate programs available, and how common features of these programs compare to those identified by Kenny et al.. Program-related information was collected from the institutional websites of Canadian universities and verified by program key contacts. Throughout this workshop, attendees will be asked to engage in both reflection and discussion. More specifically, before the findings are shared, attendees will discuss what they would hope to see available in terms of teaching and learning opportunities for graduate students. After the findings are shared, attendee engagement will take two forms. First, attendees will take part in full group discussion examining whether or not they feel that graduate teaching certificate programs meet expectations around teaching and learning education. Second, in small groups they will explore the desirability of departmental/disciplinary teaching and learning

opportunities and discuss how these opportunities might be best supported or fostered. The disciplinary-specific discussion will be grounded in recommendations put forward by Smith and Kaunka in their 2018 article entitled, “Transdisciplinary or Pedagogically Distinct? Disciplinary Considerations for Teaching Certificates in Higher Education”.

## **Q-methodology: An Innovative Approach for Course Evaluation**

*Noori Akhtar-Danesh, Danielle Brewer-Deluce & Bruce C. Wainman*

Course evaluations are used for curriculum improvement, identifying student needs, and monitoring instructor or program success. Currently, most course evaluations are based on the administration of Likert scales and open-ended questions, which have a set of profound inherent limitations. First, a set of standard items are used across departments, faculties, which usually lack course specificity and the ability to reflect the concerns most relevant to students. Second, mean or median are used to interpret Likert-scale data, yet these scores may not reflect the diversity of the student experience. Third, although open-ended questions appended to Likert scales may provide a better description of student experience and needs, they are challenging to analyze, and some students may not fully answer questions. Therefore, course evaluations are usually underpowered for understanding the complexities of the student educational experience. Alternatively, Q-methodology provides a unique insight into the shared viewpoints among students and renders rich course evaluations. In Q-Methodology qualitative data are analyzed using quantitative techniques. It has the strengths of both qualitative and quantitative methods and is regarded as a bridge between these two approaches. It highlights groups of like-minded students that share opinions, preferences and values. It supports course instructors in identifying areas of course strength and improvement in an evidence-based approach.

In this workshop, different steps of Q-methodology will be explained and its application for a fourth-year undergraduate anatomy course evaluation will be demonstrated. This workshop will help the participants develop a solid understanding of the application of Q-methodology in course evaluation.

## **Gamification in learning: Virtual laboratory simulation improves student learning outcomes & motivation**

*Danielle Tsurulnikov, Celeste Suart, Felicia Vulcu & Caitlin Mullarkey*

Gamification or gamified learning interventions have emerged in the past decade as exciting new technologies that can be deployed in the laboratory or classroom setting to improve students' experience and enhance learning. Previous studies on the integration of gamified interventions in education have demonstrated improved learning outcomes, test scores, and student motivation as compared to traditional teaching methods. Until recently, gamified learning interventions have most often taken the form of web-based simulations or gamified 'apps'. McMaster University is one of the first universities to spearhead a novel initiative in partnership with Labster (a technology-enhanced learning

start-up) and Google to introduce 3D virtual laboratory simulations to undergraduate students. In our study we evaluated the impact of 3D VR simulations on learning outcomes and motivation. Our results demonstrate a significant increase in test scores following the completion of VR simulations suggesting that this platform can indeed enhance learning outcomes. Moreover, 92% of participants reported that they found the simulation motivating and 97% of participants reported that they gained relevant knowledge from the simulation. Taken together, our data suggest that 3D VR simulations represent a powerful new application of gamification that can be utilized in a classroom or laboratory setting. In this workshop we will engage you in the world of 3D virtual reality by having you experience a Labster virtual lab simulation using the Lenovo Mirage Solo (with Google Daydream) headsets. This immersive experience will help illustrate the benefits of integrating gamified interventions in laboratory and classroom curriculum.

Workshop description: Have you ever wanted to integrate gamified interventions into your teaching curriculum? Gamification is a highly immersive and engaging way to improve student motivation and learning. In this workshop you will have the opportunity to experience firsthand the benefits of gamified interventions. Using Lenovo Mirage Solo headsets, we will guide you through an innovative 3D virtual reality laboratory simulated developed by Labster. Moreover, we will discuss the advantages of utilizing gamification and strategies on how to implement these interventions into your curriculum. Come join us, game on!

## **Experiential Learning: In and Across the Disciplines**

*Lisa L. Jarvis & Shirley Hall*

Experiential learning helps students to move from the classroom to independent reflection about significant experiences; from campus out into the community; and these experiences can be transformational, however sometimes they can also fall short of these stated goals. What are the considerations for Experiential Learning opportunities from within a variety of disciplinary contexts and a cross section of stakeholders? How can we ensure our students are really learning by doing? How can we be sure the communities and partners they engage with have meaningful interactions? What outcomes and measures can we use to assess the achievements for our students and for our stakeholders for different type of EL? What research exists to validate these actions?

## **A Just-in-Time Multi-channel Assessment of Pedagogical Interventions**

*George Dragomir & Sarah Symons*

Two issues which investigators who are also practitioners often face in evaluating pedagogical interventions are 1) cohort effects and 2) realizing after a change has been successfully implemented, that pre-intervention data collection would have allowed the effects to be quantified and discussed (Diamond, 2011). In this project we propose a method which tackles both these problems.

Our study design involves combining three streams of data: a longitudinal study of student perceptions of academic preparedness over a period of 7 years (Symons, Colgoni and Harvey, 2017), secondary use of grade data over the same period, and a new, targeted student survey. Our aim is to use these channels to gain an understanding of how a pedagogical innovation is impacting students in a multi-disciplinary, active/experiential learning program (Eyles and Racine, 2007). Our initial focus is on one disciplinary area: first year mathematics

In this sandbox session, participants will first be shown the framework of our project including the constraints of the data we already have. We will outline relationships between four key elements: the intervention itself, grade data, new survey instrument, and pre-existing student perception data. Participants will help to identify approaches for an effective targeted survey. We will also discuss approaches to combining existing institutional and/or grade data with student perception data to minimize cohort effects even in short-term studies, record impact of interventions, and gain a richer picture of their courses or programs.

## **Factors that affect attendee response rate to post-workshop assessment surveys**

*Jacqueline Kreller-Vanderkooy & Lucia Costanzo*

Last year, we standardized the post-assessments for our Data Skills workshops. The post-assessments for each workshop have three identical questions and one question customized to the workshop learning objective. The goal of standardizing assessments is to be able to determine the usefulness of the series across all workshops. We would like to compare response rate between different modes (online, paper), and compare response rates between different types of instruction (in-class, library workshop, large classes, smaller classes.) We are in the early stage of the research cycle and would like to be able receive feedback from like-minded researchers.

## **What is a Spring Intersession and how do we assess it?**

*John Maclachlan, Rebecca Collins-Nelsen, Rodrigo Narro Perez & Kim Dej*

In May 2019 McMaster University approved funding to imagine, create and deploy a new time and style of learning at McMaster dubbed *Spring Intersession*. The goal of Spring Intersession is to provide novel interdisciplinary and experiential learning opportunities that allow students greater freedom to explore their academic interests more broadly. In May 2020 the initial offering of the first year course *INSPIRE 1AO3* will permit students to choose from a series of studios, workshops, and field opportunities to explore myriad questions related to contemporary issues in the City of Hamilton, Ontario such as social injustice and inequity, geomorphic catastrophes and climate change, and the impact of the Hamilton Harbour in the city's history. This course will be open to students from all Faculties.

A conscience effort has been made to chronicle the development of ideas leading to the creation and deployment of Spring Intersession. As the inaugural course nears, we are interested in considering pertinent research questions and avenues that get to the core of this initiative. Specifically, we are interested in investigating the impact of a unique learning opportunity on students, on instructors and potentially on the University itself. Ideally, a comprehensive research plan will include various scales, methods, and timelines that will lend themselves to a variety of research findings and outcomes.

This Sandbox session will provide us the opportunity to brainstorm with the audience in order to further define our research mandate. The audience will be full participants who, after a short introduction to Spring Intersession, will help us mold the research questions that will keep us productive for years to come.

## **How do those who design education stay inspired? Exploring what experiences can support education developer's practice in teaching and learning**

*Emily Block, Dilshan Pieris, Sarah Shackleton & Teresa Chan*

The world-renowned IDEO design company regularly facilitates *Make Believe Time* (MBT) sessions during work hours to provide their employees with regular opportunities to engage in experimental, imaginative, and creative experiences. Their aim is to sanction time for employees to practice innovative thinking by providing an experience which values the process and is not constrained by the same day-to-day objectives or tasks they have to perform within their normal workday. An MBT session can be followed up with facilitated debriefing as a means of creating a safe space to explore what they learned and how it can inspire innovative ways to overcome design challenges they encounter in their practice.

Within the McMaster Faculty of Health Sciences community, we lack such opportunities as a means to fuel innovation, practice creative problem-solving, and stimulate out-of-the-box thinking. Having an opportunity to engage in process-focused activities, experimentation, imagination, and creativity, as well as reflect on what was learned, would enable educational developers to stay inspired and empowered to overcome challenges they encounter in their practice. This is because it gets them thinking about teaching through a learning perspective .

Thus, we aim to address this gap by creating MBT-style experience that blends Kolb's experiential learning model to engage educators in an unfamiliar creative process as a means to inspire reflection on their teaching practice. We aim to discuss what about these experiences may facilitate reflection on teaching and learning practices to inspire innovation.

## **How might we build capacity for design thinking as a vehicle for curriculum innovation and educational leadership across campus**

*Sean Park & Robert Fleisig*

Supported by an LTL Fellowship, we have begun building a culture and community of practice around design thinking for educators across the university. We took our first step this past June in building this community, with a two-day workshop for 10 McMaster educators. That workshop introduced participants to creating student-centred experiential learning experiences with design thinking. We believe that the design thinking methodology and mindset of design thinking are an invaluable approach to curriculum innovation and educational leadership. As such we are seeking generative conversation, critical questions, and novel ideas from participants in this sandbox.

In the planned sandbox, we will briefly introduce design thinking as a methodology for creating new experiences that are grounded in a deep understanding of what people think, feel and do. Following this context setting, we will share our intent to build a strong community of practice for design thinking along with some key questions about how we might proceed. What are the perceptions and myths about design thinking that we need to address? How can we best communicate the learnings and success of our collective efforts using design thinking to foster generative conversation about its value and potential? As a methodology brought to life by radical, interdisciplinary collaboration what are the barriers and opportunities for teaching and utilizing design thinking across boundaries to engender new ways of creating exceptional learning experiences with and for students?

With the help of faculty and students who are at various stages of learning about design thinking, this sandbox will have small groups use design thinking methods to: 1) quickly generate a ridiculous number of questions and ideas that address how we might build capacity for design thinking across campus; and 2) use the wisdom of the crowd to evaluate and surface the most important questions and ideas to carry forward.

## **MacChangers, Program Evaluation**

*Beth Levinson, Kyle Ansilio & Cameron Churchill*

The purpose of this interactive presentation is to describe and discuss our approach to evaluating the MacChangers program. MacChangers is a co-curricular program that pairs interdisciplinary teams with community and campus partners and aims to foster deep learning and skill development through high impact educational practice (Kuh, 2008). To this end, the MacChangers program provides experiential opportunities for students to be successful in a changing world.

During this presentation, we will briefly describe the MacChangers program focusing on our high attrition rate over the last four years. We will articulate the changing context and new enabling factors (funding, student partners, new staff) that have recently been put in place in order to improve the program and increase retention. We are considering using

Guskey's framework in combination with the Theory of Change to determine the best level and scale of indicators to demonstrate the impact of the program in supporting students to complete the program and meet the outcomes (Chalmers & Gardiner, 2015a).

Through our evaluation, we would like to develop a better understanding of those students who complete the program and achieve the desired outcomes by evaluating the program. We will invite participants to discuss the following topics so that we may better define our research question: what strategies they use in their own institutions to evaluate similar programs; and, in addition to mid-point program reviews, what other methods participants use to evaluate program effectiveness around retention and meeting program outcomes. Participants will be encouraged to brainstorm what challenges might be encountered in conducting this type of evaluation and what opportunities exist for gaining engagement and buy-in of stakeholders throughout the process.

## **Impact of Curricular Workload on Students' Mental Health using a Curricular Densitometer: A Pilot Study**

*Jeremiah W. Acharibasam & Dr Kalyani Premkumar*

Curriculum overload (CO) is a major problem in the 21<sup>st</sup> century due to expanding wealth of knowledge and hurried schools and classrooms, among others (Adolfsson, 2018; Jamshidi & Cook, 2003). Curriculum-related challenges health students face include excessive parallel courses, heavy course work, simultaneous assignments, and difficult examinations (Vergel et al., 2018; Othman et al., 2013). Consequently, CO is associated with poor student mental outcomes including stress, depression, anxiety, and underperformance (Boni et al., 2018; Verge et al., 2018). Impact of CO is likely to be more on health science students due to the high density of their curriculum. Currently, little research exists on effective solutions to mitigate CO post-secondary institutions.

Our study will pilot a novel mobile application (Curricular Densitometer - CD) among students of the Biomedical Science Course, College of Medicine, University of Saskatchewan. Students will use it to track course load and rate their stress linked to such load. The CD has been developed in collaboration with the Department of Computer Science, U of S.

The study's main objective is examine the feasibility of the CD app. in monitoring CO and students' stress levels.

Our session's focus on introducing the idea to audiences to obtain relevant feedback to improve the study by demonstrating the live app. In this session, we hope to answer one major research questions: 1. How feasible and acceptable will students perceive the CD app.?

Ultimately, the CD app could become an effective curriculum load monitoring tool for curriculum planning to improve student learning.

## **Shifting Conceptions and Stretching Practice: The Impact of the Facilitator Development Workshop (FDW)**

*Meagan Troop & Monica Vesely*

The Instructional Skills Workshop (ISW) is an intensive experiential and collaborative learning opportunity designed to enhance the teaching effectiveness of both new and experienced educators. After completing the ISW, some chose to participate in the Facilitator Development Workshop (FDW), which prepares them to deliver the ISW to others. The FDW requires that participants rotate through three roles: learner, instructor, facilitator. The core of the FDW is another ISW with facilitation skill development as the primary focus. The FDW curriculum encourages participants to: (a) experiment with facilitation strategies with a view to extracting meaningful feedback, (b) adopt and model a reflective approach to instructional practice and nurture it in others, (c) connect and collaborate with a variety of peers, and (d) expand conceptions of teaching and learning. In our SoTL Sandbox session, we would like to highlight some of these curricular themes and share our intended research design for a qualitative study that aims to address a gap in the literature by examining participant experiences in an upcoming offering of the FDW at the University of Waterloo. More specifically, we will propose our theoretical framework and methodological approach for examining the impact of the FDW experience as a potentially transformative, professional development opportunity (Davis, 2004; Dawson et. al., 2014; Macpherson, 2011; Cranton & Taylor, 2012). Participants will engage in critical reflection and consciousness-raising activities (Cranton, 2006) that characterize some of the signature pedagogical approaches included in the FDW. Finally, we will create a generative space for sharing ideas and feedback regarding our proposed SoTL project in the spirit of continued enhancement and refinement.

## **Accessibility for campus educators and support for their emotional wellbeing**

*Kate Brown & Alise de Bie*

The Employee Accessibility Network was established in 2017 as a peer /advocacy network for faculty and staff with disabilities (broadly understood) at McMaster, as well as to function as a consultative body to the university on matters of accessibility and inclusion. Since its establishment, the Network has mostly been composed of McMaster staff and we have struggled in areas of recruitment and participation of faculty members and sessional instructors with disabilities. This research project seeks to engage with this 'hidden' demographic. We are looking to gather disabled faculty/educator feedback on the barriers they face on campus, what might be done about these barriers, and how teaching practice can be made more accessible for instructors. We also want to identify and gather such a group so that they can be consulted as initiatives develop on campus. During the SoTL sandbox, we would like to ask the following questions of our colleagues:

- Where do instructors go to talk about personal experiences of mental health, chronic illness, disability, accommodation needs, accessibility barriers or other sensitive or non-talkable issues?

- What supports might instructors most desire with regards to these workplace concerns?
- What strategies do instructors use to make teaching more accessible for themselves?
- What would be the most effective strategies for gathering instructor input on these questions? What do we need to consider as we move forward?

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While we recognize that some of our colleagues in the sandbox may not identify as disabled, as faculty/instructors/educators, they likely will have relevant and helpful 'guesses' for these questions, from their own perspectives.

## **A Study of the Effectiveness of the Redesign of a Large Introductory Linear Algebra Course**

*Alex Rennet, Jaimal Thind, Mike Pawliuk & Parker Glynn-Adey*

This past summer, the authors collaborated to redesign a large Introductory Linear Algebra course at our institution (the course typically has about 500-600 students per semester divided into four or more coordinated sections). The course redesign centered around facilitating an active learning approach, and involved creating pre-class readings and various pre-class, in-class, and post-class quizzes, polling questions and activities. We also ran training sessions for instructors and teaching assistants.

To measure the effectiveness of this redesign we will analyze quantitative data from a number of sources, including (a) surveys of attitudes and perceptions related to mathematics (adapting questions from a validated instrument), (b) mathematical reading comprehension tests (developed by the authors) and (c) marks from past and current iterations of the course.

In our session we will:

- Give a brief overview of the course structure before and after the redesign.
- Outline further details of the design of the study, and what has been done so far.
- Discuss and solicit feedback from participants on a number of the aspects of the study, including the the surveys and reading comprehension tests.

## **Design thinking: An approach to guide exploration of online graduate education experiences**

*Ilana Bayer, Asiana Elma & Lawrence Grierson*

To explore user experience and to inform areas for improvement and enhancement in the online Health Sciences Education Graduate Program at McMaster University we are conducting a project "***Innovation by Design: Engaging Learners and Faculty in Course Design and Development***". A 5-step design thinking approach (empathize, define, ideate, prototype, and test) is being used as a framework to guide the research. This human-centered design process engages end-users (i.e., student, faculty, or staff)

at the centre of design decisions. The consideration to include both students and faculty as end-users will help to enhance the students' overall learning experiences because it will facilitate consideration of different types of interactions (e.g., student-student, student-instructor, student-content, instructor-content) in the learning environment that impact both experience and success. The first phase of the project will focus on the gathering data to conceptualize the needs and experiences of the end-users; identifying key challenges, opportunities and educational solutions; and designing educational prototypes. The second phase of the project will involve testing of the educational prototypes with the end-users. While the focus of this work is in online graduate education, the design principles can also be applied to curricula in a variety of educational delivery formats (e.g., face-to-face and blended learning environments) as well as for a variety of learners at different stages in their education journey (e.g., undergraduate, graduate, residency). In this session, we will discuss principles and methodology of design thinking and share how we are using this approach in our research and our research questions.

## **Strategies to Bridge Learning Gaps through Summer Academic Skills Orientation**

*Lovaye Kajjura, Jenna Storey & Mary McCaffery,*

Students transitioning into university often demonstrate gaps in learning, leading to academic challenges. This session will share the orientation programs of McMaster University's Student Success Centre (SSC) Academic Skills Development programs, which offer learning opportunities to bridge these gaps through peer mentoring and opportunities for collaborations with Faculty and staff across disciplinary contexts. The primary objective of these collaborations and programs is to develop the academic skills necessary to build student resiliency, by increasing effectiveness in notetaking, academic reading, and writing skills in various disciplines and using feedback. These begin with SSC Academic Skills pre-orientation summer programming, in particular during the Academic Skills Orientation, the Summer Writing Program, and the Welcome Week Series. During our conference SoTL Sandbox session, we will discuss the summer academic skills model, its goals, design, learning objectives, administrative logistics, implementation, resources, and related research initiatives. We will continue by sharing the rationale of our academic services which provide long-term sustained support, opportunities to receive and give mentorship, cultivate professional skills; all with a self-directed and collaborative learning progression. Attendees of our conference session will identify skills that are essential to academic success and considered vital to professional development by participating in active facilitated discussions. Presenters will also give attendees "hands on" access to our resources and online exemplars. Attendees will be encouraged and inspired to design and implement the presented academic skills into their undergraduate and graduate courses and see the value of campus partnerships both across faculties and with student support services.

## **The Truth, the Whole Truth, and the Messy Truth: A Collaborative Auto-Ethnographic Exploration of the Experiential Reality of the Curriculum Renewal Process**

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Models of curriculum renewal or redesign, including many proposed by university teaching and learning centres, suggest an orderly progression through a smooth and streamlined process. For those involved in this process at the unit level, however, the experience is necessarily more halting, fractious, contested, and complex, as institutional, individual, and pedagogical forces intersect (Keesing-Styles et al., 2014; Downey et al., 2019). Following a multi-year process of curriculum renewal in a Canadian university health professional program, we have undertaken an auto-ethnographic study of the lived experiential reality of that process, drawing on the perspectives of departmental faculty, clinical faculty, educational development staff, and administrative staff. Together the four authors of this study are using an iterative process of guided reflection and discussion to explore key questions about curriculum renewal in action: Whose voices are dominant and whose are muted during the process? How and why do institutional and departmental politics influence curricular decision making, both explicitly and implicitly? What are the deeper implications of participants' experiences for curriculum development and implementation? In this SoTL Sandbox, we will present an overview of emergent themes, issues, and questions from the initial phase of the project. Attendees will be introduced to auto-ethnographic methodology and will participate in an abbreviated version of our reflection-and-discussion process, leading to a collaborative conversation about the hidden forces that shape the process and product of curriculum redesign across the disciplines.