**2016 The Educational Leadership Initiative @ Queen’s (ELI) Recipient**

**Building Better Together: An Interdisciplinary Approach to Teaching and Learning**

*Dr. Claire Davies and Elizabeth Delarosa, Mechanical and Materials Engineering; and Dr. Catherine Donnelly and Susanne Murphy,**School of Rehabilitation Therapy*

The Canadian Interprofessional Health Collaborative’s framework was developed to inform education and practice across health professions based on a common approach to competencies. We seek to apply this framework to an academic environment. Rehabilitation sciences and engineering are disciplines that require effective collaborations. To make an impact, students within these professions must learn about, create and perform as effective players in a team environment. This initiative proposes that these two programs capitalize on the space, teaching and learning resources to engage in capacity building. The proposed teaching and learning initiative will enable students in these programs to gain a deeper understanding of their respective roles and spark innovation to address reported social challenges by learning how to form valuable partnerships.

**2016 Educational Research Grant Recipients**

**Faculty Winner: Designing Effective Multiple-Choice Questions for Assessing Higher-Order Cognitive Skills in Anatomy**

*Dr. Les Mackenzie, Department of Biomedical and Molecular Sciences*

Multiple-choice questions (MCQs) are frequently used as a method of both formative and summative assessment in anatomical sciences. Although there are some general suggestions around the format, structure, validity, and reliability of MCQs, there is a lack of evidence-based guidelines on writing effective questions for assessing higher-order cognitive skills in the context of anatomy. Appropriately constructed MCQs when aligned with learning outcomes and triangulated with other methods of assessments can be an efficient and powerful strategy for assessing student learning. This research will use think-aloud protocol to develop design recommendations, and discuss implications for the use of MCQs in assessing higher-order cognitive skills in anatomical sciences.

**Student Winner: Exploring the Experiential Dimension of Sustainability Courses**

*Cassandra Kuyvenhoven and Peter Graham, School of Environmental Studies*

The goal of sustainability challenges many implicit assumptions and conventional wisdoms about what education is and does. Sustainability courses may actually be counterproductive when they fail to examine and account for underlying epistemological and ontological (cultural) assumptions, as evidenced in both explicit learning outcome goals and implicit hidden curricula. Phenomenographic research on courses designed to provide students with competencies in sustainability can tell us how students experience these subtle and sometimes subconscious contradictory messages. This research makes an important contribution to both the literature on Education for Sustainable Development, but perhaps even more importantly the philosophy of education literature.

**2016 Teaching and Learning Enhancement Grant Recipients**

**Gendered and Colonial Violence: Beyond ‘Awareness Raising’ and toward experiential education using applied drama and collaborative materials development**

*Dr. Aaron Franks, Cultural Studies Program and the Centre for Indigenous Research Creation (CIRC); and Dr. Lindsay Morcom, Faculty of Education, Aboriginal Teacher Education*

*The two-year research project Gendered and Colonial Violence: Beyond ‘Awareness Raising’ and toward experiential education using applied drama and collaborative tool creation* (*Beyond ‘Awareness Raising’*) pursues the potential for self-guided learning in collaborative environmentsthrough performance and respectful engagement with Indigenous cultural protocols. Focusing on three threads, ‘flipped’ and engaged learning spaces, Indigenous cultural safety, and the gendered and colonial dimensions of social justice education, *Beyond Awareness Raising* is inspired by a Queen’s Native Student Association production of the play *The Hours That Remain*, which explored the crime of missing and murdered Indigenous women through an intimate and familiar setting.

Revisiting the play in a new series of workshops with Indigenous education students, the project will maximize the potential for embodied, experiential learning for multiple targeted student and educator communities at Queen’s and beyond. *Experiential learning*, *diversity* and *Indigenization* are not waiting to be developed—they are waiting to be shared.

**Community-Supported Learning in LLCu 295: Indigenous Digital Media**

*Dr. Jennifer Hardwick, Department of Languages, Literatures and Cultures (Indigenous Studies Program)*

LLCu 295: Indigenous Digital Media is a seminar course which explores the relationship between digital media and Indigenous cultures in North America. As part of the course, students must produce a public-facing final media project that engages with course material and the broader community. With the intent of supporting students in their final projects and deepening and expanding Indigenous Studies and Digital Humanities (DH) networks at Queen’s, LLCu 295 will pilot a mentorship model that incorporates experts and knowledge keepers into curriculum. Five mentors with practical experience in DH and/or Indigenous ways of knowing and learning will be asked to give a guest lecture, hold an open office hour, and attend a final showcase of student projects. Students and mentors will be surveyed about their experiences and results will be disseminated via the Centre for Teaching and Learning, the Aboriginal Council of Queen’s University, and the Digital Pedagogy Institute of Ontario.

**Just-In-Time Tutorials: Anytime, Anywhere**

*Dr. Joshua Marshall,**Robert M. Buchan Department of Mining Engineering, Department of Mechanical and Materials Engineering, and Department of Electrical and Computer Engineering; and Heshan Fernando (Ph.D. Candidate),* ***D****epartment of Mechanical and Materials Engineering; and Scott Nokleby,**The Robert M. Buchan Department of Mining*

Effective student-instructor engagement is simply hard. Some instructors may fare well in the classroom, or deliver well-prepared online (asynchronous) lectures. Yet, tutorial sessions— where spontaneous interactions are supposed to occur—are usually poorly attended and learning objectives are often unclear. Such issues are worse for online courses, where participants are at different geographic locations (or even time zones). We propose to trial the notion of *Just-In-Time Tutorials*, which are (pseudo-) randomly scheduled online gatherings, each with a purposeful theme**,** and driven by either an immediate pedagogical need (e.g., to answer questions about an assignment) or driven purely by the advent of a unique learning opportunity (e.g, the instructor wants to share the educational view from a remote field location or conference)! Just-In-Time Tutorials will be tried and tested during the next four years of the multidisciplinary online course MINE 472 *Mining Systems, Automation and Robotics*.

**Lab a la carte: A Multimedia Platform for Hands On Training***Laurent Seroude and Taylor Barwell, Biology*

Higher operating cost and the need for specialized equipment prevent many science courses from offering labs. Labs also require significantly more preparation and testing time than a traditional course. Science and medical departments do share the need for students to learn the same scientific principles and to use the same scientific equipment. It is proposed that labs can be implemented to be accessible for any science department to incorporate into any course or program. Lab à la carte is a multimedia platform that offers a collection of “ready to use” teaching/training labs. The platform also takes custom requests to create specific labs and therefore greatly reduces the time to be invested to expand lab offerings. Each lab provides traditional or electronic media and is left open for students and instructors to use either or both. The platform can be used for any scientific or technical hands on training of undergraduates, graduates, research technician, technical staff and general public.

**The acquisition and evaluation of high level skills acquired (or not acquired) using a novel version of the ‘flipped’ class**

*Dr. Ken Rose, Department of Biomedical and Molecular Sciences*

LISC 300 (The Process of Discovery in the Biomedical Sciences) is a new course that is driven by one objective – to identify the critical questions that must be answered to resolve major controversies or gaps of knowledge that impede the understanding of fundamental principles in the Biomedical Sciences and their application to health care. Groups of 30 students will be subdivided into 6 teams. This group will be responsible for collecting reliable information that is pertinent to one controversy, identifying a rationale for six questions that is logical and precise, and assimilating the information for a written report and public presentation. This is a demanding task that requires independent learning, teamwork, critical thinking, inquiry, and problem solving. The goals of this application are twofold: 1) to build a network of undergraduate mentors to alleviate the angst caused by the course format and the acquisition of high level skills. 2) to assess if the format of this course improves the acquisition of high level skills.

**The Interactive Conflict Simulation Initiative (ICSI)**

*Dr. Stefanie von Hlatky, Department of Political Studies*

The Interactive Conflict Simulation Initiative (ICSI) will be an interactive learning pilot program that provides instructors within the Department of Political Studies with an interactive security simulation to use to complement their course materials, engaging students through experiential learning to enhance the student learning experience. Incorporation of experiential learning techniques into courses offered by the Department of Political Studies is only beginning to develop, with instructors seeking tools that are transferable among different courses. Thus, the ICSI will focus on creating an easy to use program for the use of the department as a whole, adaptable to the different material needs of each instructor. Apart from integration into a number of courses offered by the department, the ICSI will also be used by the Centre for International and Defence Policy, the Royal MilitaryCollege of Canada, and the School of Policy Studies as a professional training tool for policy development.

**A Flipped Classroom Approach to Fostering Competency-based Learning Outcomes in an Experiential Learning Course**

*Dr. Jennifer Tomasone, Dr. Amy Latimer-Cheung, and Amarah Epp-Stobbe, MSc (Candidate), School of Kinesiology and Health Studies; Grant Bradley, R. Kin., St. Lawrence College; Michelle McCalpin, School of Kinesiology and Health Studies; and Chris Hall, B.Ed., Revved Up Program Coordinator*

The Exercise, Disability and Aging mini-stream offers third and fourth year Kinesiology, Physical and Health Education, and Health Studies students opportunities for experiential learning. Recent feedback suggests that new teaching strategies are required to maximize student engagement. The proposed project will implement a **flipped classroom approach to fostering competency-based learning outcomes** in KNPE336. The specific aims of the project are to (1) revise the learning outcomes and assessment strategies of KNPE336 to include core competencies required for students to obtain the Canadian Society for Exercise Physiology Personal Training Certification (CSEP-CPT); (2) adopt technology-based teaching strategies to enhance learning of the CSEP-CPT competencies; and (3) pilot the use of onQ ePortfolios to assess students’ perceptions of their learning of the CSEP-CPT competency-based outcomes. Because experiential learning and competency-based curriculums are increasingly common in post-secondary institutions, the project outcomes can support the enhancement of programs both within and beyond Queen’s.