Supervisor & Project Information Form

Please complete and return via email ONLY to gdip.hres@utoronto.ca by ***Monday September 30, 2019***

Supervisor Information

MUST have unrestricted SGS appointment (appointment to supervise graduate students)

Name: **Drs. Maria Mylopoulos & Nikki Woods**	**Email: maria.mylopoulos@utoronto.ca** **nikki.woods@utoronto.ca**
SGS Department: **Institute of Health Policy, Management and Evaluation**	**Field of Research: Health Professions Education; Cognitive Psychology**
Research Institution affiliation (if applicable): **University Health Network**	**Location of Work:** **Toronto General Hospital – The Wilson Centre**
Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress: **Drs. Woods and Mylopoulos are full-time Scientists and as such schedule regular weekly research meetings with all members of their Excel Lab (to review progress.**	

Project Information (will be posted on GDipHR website for student access)

TITLE: Preparing tomorrow's experts today: An exploration of adaptive expertise and deliberate practice in higher education

DESCRIPTION (MAX 500 WORDS):

As society becomes increasingly complex, professionals must be prepared to rise to the challenge of solving novel and ambiguous problems. Nowhere is the need for this preparation more pressing than in healthcare. The patients of the 21st century will live longer with multiple health conditions. They will require new models of care, delivered through new technologies. To be effective, healthcare professionals will be expected to go beyond the limits of routine care.

The debate on which forms of training are best suited to achieve this aim is ongoing. Currently, many education programs subscribe to a model of expert development known as *deliberate practice* which stresses the importance of repetitive, targeted practice on tasks that experts are expected to perform. Research suggests that with extensive and repetitive training students can master routine tasks in many games and sports. In medicine, deliberate practice can help trainees master very specific procedures (e.g. placing stiches). However, expertise is more than completion of procedures; a medical expert must also be able to think critically and reason through complex cognitive tasks, such as making a diagnosis.

The *adaptive expertise model* of expert development characterizes experts as being able to efficiently perform routine tasks alongside the capacity to innovate and learn from novel or complex tasks. Thus determining the ideal educational pathway for expertise requires testing how instructional models prepare students to *learn novel concepts or tasks* – not only repetitive performance on routine tasks. Our previous work has shown that integrated instruction that stresses conceptual understanding of tasks (e.g. knowing scientific reasons behind making a diagnosis for a patient) can foster preparation for future learning, and thus support development of adaptive expertise in medicine.

The relative merits of the deliberate practice and adaptive expertise models for higher education are frequently debated but rarely empirically compared. Our research project is a series of three interconnected studies exploring the learning interventions suggested by each model. In our first study, we establish how deliberate practice can be used to train medical students to master diagnosis of clinical cases. Participants will complete deliberate practice until they reach a level of mastery comparable to a more expert reference group. Drawing on these findings our second study will experimentally compare students who complete deliberate practice to students who receive integrated instruction for diagnosis. The outcomes for this study will include how well students in each group a) solve unfamiliar but related clinical cases and b) how well they learn and master *new* clinical problems. The third study is a qualitative exploration of the learning experiences of participants in each learning intervention in order to understand how our results can best be put into practice so that students are able to receive maximum benefit.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

☒Yes ☐No ☐Application Submitted (Date: _____)

Do you expect this work will be published within the 20 months?

☒Yes ☐No ☐Uncertain / Other

Student Roles & Responsibilities (*please be as specific as possible****)***

Please indicate who will serve as the student's direct report for daily oversight (PI, PhD student, technician, etc…)

Drs. Mylopoulos and Woods will supervise and mentor the student . The student will assist the graduate students and research assistants working on the project with material development, recruitment, data collection and analysis across all three studies. By participating in this project, the student will build their academic competency and professional skills. This will include theoretical exposure and practical experience in research methodologies (both experimental and qualitative); socialization into research dissemination strategies, including publications and presentations at the local, national and international levels; integration into our interdisciplinary network of colleagues at local, national and international professional conferences. They will also learn about research ethics and data management in the context of both quantitative and qualitative research. As a student at the Wilson Centre they will also be afforded opportunities to teach and communicate effectively both verbally and visually in the context of monthly research presentations, and two annual conferences hosted by the Wilson Centre. As appropriate, the student will also participate in education implementation work as our results shed greater light on the relative efficacy of educational interventions on development of expertise.