SimBrainVR - an immersive, interactive learning experience linking the clinical neurological exam with foundational neuroanatomy knowledge

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Time: 10:30 - 10:45

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With SimBrainVR we are expanding the learning ecosystem and combining the clinical neurological exam with a direct refresher of the underlying neuroanatomy. Students enter an immersive VR experience together with the health care team to meet a patient with whom they will go through the neurological exam. Students can interact with the patient and receive haptic feedback through their VR controllers during the motor exam. The virtual patient responds to the standard neurological exam with responses within the normal range. This learning experience has two main aims: (1) to provide a safe, standardized, replicable simulation environment and (2) to link the clinical skills with the underlying neuroscience. When a student is uncertain about the significance of their exam findings, they can enter the “Mind Palace” through a portal, where the learner has access to a curated library of resources relevant to the neurological exam . Once the student enters the Mind Palace, the simulation is halted and the student is in an expansive environment with curated learning materials linked to the clinical encounter. With SimBrainVR we leverage the affordances of VR technology to create a better learning environment: the student is in a safe environment for training and making mistakes and we can suspend reality by halting the simulation and allowing the learner to enter an alternate dimension where review of foundational learning materials can occur.

Does Sequence Matter? Effect of Simulated Environment Complexity on Cognitive Load and Learning

Authors: Peter Gariscsak, Heather Braund, Faizal Haji
Presenter: Faizal Haji
Time: 10:45 - 11:00

Key words: simulation, cognitive load, fidelity

Introduction: While high-fidelity models are pervasive in healthcare simulation,[1–3] Cognitive Load Theory (CLT) hypothesizes that the increased cognitive load (CL) imposed by such training may be detrimental for novices' learning. Previously, we showed that novices engaged in simulation training in complex (high fidelity) environments had higher CL and made more sterility breaches compared with peers training in simple (low-fidelty) environments.[2] Here, we investigated if training in a simple-to-complex (progressive) sequence would counterbalance CL and fidelity to improve simulation learning.

Method: In this three-arm prospective, randomised experiment, we randomly assigned 52 novice medical students to simulation-based lumbar puncture (LP) training in a simple-to-complex (progressive), complex-to-simple (mixed) or complex-only sequence. LP performance, sterility, communication, and intrinsic, extraneous and germane load (IL, EL, GL)[4] were measured during skill acquisition and during a retention/transfer test. Repeated-measures ANOVA and Tukey's post-hoc test was used to compare within- and between-subject effects.

Results: During skill-acquisition, sterility breaches decreased ($p<.01$) with no group differences. Progressive group LP accuracy and GL was higher compared to the complex-only group ($p<.01$) and mixed group respectively. Increased IL ($p<.01$) was observed in the progressive group over time; the opposite occured in the mixed group ($p<.01$). At retention, IL was higher in both the progressive ($p<.01$, $p=.02$) and complex-only ($p=.02$, $p=.04$) groups, with no group-based differences LP performance. At transfer, no group differences were observed. Data extraction is ongoing for global ratings of LP performance and participant communication.

Conclusion: Contrary to CLT's hypothesis, while the progressive group had higher germane load and lower intrinsic load than the complex-only group, this did not translate to better performance at retention or transfer. This calls into question the notion that progressive increases in complexity and/or fidelity of training result in improved learning.

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Fostering shared care through educational design: Reflections from the BC Cancer Primary Care Learning Session online Modules

Authors: Nicole Didiuk, Sarah Tajani
Presenter: Nicole Didiuk
Time: 11:00 - 11:15

The UBC division of Continuing Professional Development (UBC CPD) seeks to develop, implement, and evaluate continuing professional development (CPD) initiatives for physicians and other health professionals to optimize clinical practice and the delivery of patient care.

The BC Cancer Provincial Primary Care Program engaged UBC CPD in 2018 to better understand the needs of family physicians supporting patients along the continuum of cancer care. Based on needs identified in the resulting Primary Cancer Care Engagement & Needs Assessment Report, a plan spanning 2019-2023 was established to create the BC Cancer Primary Care Learning Sessions, which seek to enhance primary care provider engagement, promote shared care between all members of the cancer care team, and provide enduring resources to help support practice improvement. Self-directed online modules on the topics of breast, colorectal, and prostate cancers were launched in 2020 on UBC CPD's online learning platform. Importantly, patients were consulted for their first-hand subject matter expertise during the development of the modules and worked alongside physicians to develop learning content.

Impacts of the modules are not yet well understood and a mixed-methods program evaluation involving survey and interview data collection is underway not only to examine how this education is being received by learners, but also to capture reflections from interprofessional working group members on the module development process. Survey data will be summarized and interviews thematically analyzed with the aim of extracting key learnings to inform the design of future educational interventions geared toward shared care models of health care delivery.

Keywords: primary care, oncology, shared care

Improving Student's Learning Experiences in a Distributed Learning Environment

Authors: Anekwe David, Audrey Chu, Jamie Munro, Mikayla Ogrodniczuk, Andrew Van Der Ham, Claire Watts-Grant
Presenter: David Anekwe
Time: 11:15 - 11:30

Background
Distributed learning in health professions education is a strategy used to address the health inequalities in the Northern and Rural areas, but the implementation of distributed learning is not without its challenges. This qualitative improvement project aimed at extracting important lessons that could help improve students' learning experiences in a distributed education environment.

Methods
Participants included the inception cohort (2020-2022) of the Master of Physical Therapy program at UBC. This study used a mixed-methods approach that involved the analysis of the quantitative and qualitative data from the participants 'Students' Evaluation of Learning Surveys' and the data from three focus groups meetings with the participants.

Results
Students' recommendations for improving their learning experience included (i) Technology: using a two-directional a question feature like Slido during classes/labs, equipping student's tech representatives; and (ii) Teaching: providing a video recording of skills taught in the lab to students, use of asynchronous mode for principally didactic materials, travel funding for instructors to teach from all sites and use of designated question period during sessions. Others include professional development for instructors and clinical skills assistants (CSAs), improved communication between lead instructors and CSAs at the distributed sites, improved consistency of CSAs, improved cohesion among students and transparency during the application process about the expectations of being a student at a distributed site.

Conclusions
Important findings from this study should be considered by instructors and academic leaders to enhance students' learning in a distributed learning environment and adapt to the emerging needs of learners.

Keywords: Learning, 'Distributed Learning Environment', 'Students' Experience