

Washington State University

College of Education

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Will defend the dissertation

Date: April 17, 2019

Time: 12:30 P.M.

Location: Pullman - Cleveland 353

ZOOM meeting upon request

Faculty, students and the general public are encouraged to attend.

A META-ANALYSIS, SYSTEMATIC REVIEW, AND EMPIRICAL EVALUATION OF SIMULATION-BASED TRAINING IN VETERINARY EDUCATION

Chair: Kira Carbonneau

One of the greatest challenges in veterinary education is adequately preparing students with the clinical skills they need to be successful healthcare providers. Integration of simulation-based medical education (SBME) approaches into the veterinary curriculum can help address challenges to clinical instruction in the traditional, apprenticeship-based model of veterinary education. The SBME model of learning aims to enhance clinical skills and increase patient safety by providing standardized learning opportunities and systematized assessment of outcomes in a variety of cognitive, psychomotor, and affective domains. Despite the evidence regarding the effectiveness of simulation-based training in human healthcare education, the effectiveness of this instructional modality in the context of veterinary education remains unclear. The purpose of the first phase of this research project was to gain insight into this literature gap by comprehensively searching, critically appraising, and carefully synthesizing the evidence to inform policy and guide future development of simulation-based resources in veterinary education. A systematic search identified 175 relevant records of which 60 full-text articles were assessed for eligibility. Information was extracted from 71 independent studies. The overall weighted mean effect size was small for the fixed effect model ($g = 0.33$) and stronger for the mixed effects model ($g = 0.49$). All outcome measures produced statistically significant ($p < .001$) mean effect sizes in favor of simulation: knowledge ($g = 0.41$), timing ($g = 0.35$), process ($g = 0.79$) and product ($g = 0.53$). A moderator analysis was conducted for study characteristics and quality, as well as best practice recommendations for features of instructional and research design. The moderators that positively influenced the effect size of training with simulation were incorporated into the design of an empirical study that demonstrated when an anesthesia simulation-based course was designed according to best practice recommendations, pretest-posttest scores for knowledge and self-efficacy significantly increased and course participants received higher ratings on clinical task performance ($d = 0.86$) and professional skills (i.e., communication and collaboration) ($d = 0.72$) compared to a matched control group when evaluated by blinded, external raters using a standardized rubric.