

TITLE: Factors Associated with Students' Hypothesis Revision during the Science Classroom Inquiry (SCI) Simulation

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Introduction: The Science Classroom Inquiry (SCI) Simulation is a website application that promotes inquiry-based problem solving through the simulation of science-related experiences. Prior work has shown that these simulations encourage student understanding of the methods of scientific research. In the current project, we are studying a particular subset of student behaviors while engaged with the simulation. Specifically, we are assessing factors associated with students' hypothesis revision. We expect factors like the participant's year in undergraduate or postgraduate will be associated with hypothesis revision.

Method: 16 undergraduate and 3 graduate students at GSU participated in a think aloud study while completing a Science Classroom Inquiry (SCI) Simulation addressing an unusual mortality event. Video recordings of participants' on-screen activity were collected. Observational field notes and transcriptions of participants' verbal responses also were collected. These data sources are currently being coded by three independent coders following a series of rubrics. Rubrics included assessment of the participant's investigative approach, critical evaluation and prior belief bias.

Results: Data analysis will take place in February and March. The project is preliminary and exploratory and relies on inferences made about qualitative data. That said, we are coding qualitative data into quantitative categories using rubrics. Although we do not have results to report, we anticipate that a participant revising his or her hypothesis reveals he or she may view science as a changing field and be more sophisticated in their research. On the other hand, participants who do not revise their hypothesis may reveal they have a formal epistemology.

Conclusion: Findings of this project will inform future experimental research using the Science Classroom Inquiry (SCI) Simulation. SCI gives students an authentic inquiry experience within the confines of a typical classroom. Results of this work are important for educators, researchers, and simulation designers involved in creating, applying, and assessing computer-based simulations in the science classroom.