Presentations (partial list)
Price and J. Stewart, “Piloting a multidisciplinary undergraduate research program (MURP) at UBC”, Canadian Summit on the Integration of Teaching and Research, University of Alberta (2005)
Vancouver, British Columbia (2012)
Analysis of the Relationships Among Goal Orientation, Error Orientation, Online Homework Behaviours, and Learning in Organic Chemistry

ABSTRACT

I explored goal orientation, error orientation, organic chemistry achievement, problem-solving confidence, and online homework behaviours among university-level organic chemistry learners using online, homework practice software. Goal orientation is a well-studied, multi-construct theory explaining people’s specific reasons for engaging in learning behaviours. The concept of error orientation, which I adopted from the organizational behaviour domain, describes one’s attitudes and beliefs about making errors at work. Since students learning to solve organic chemistry problems routinely make errors, I explored if students could be characterized by their goal and error orientations to predict how they interact with an online homework system. Prior research shows postsecondary learners most strongly endorse task-approach and task-avoidance goals although goal orientations most related to achievement were task approach and other approach. Students reported having highest levels of learning from errors, error communication, and thinking about errors. Thinking about errors had the strongest relationship with achievement. Learning from errors, error risk taking, and thinking about errors had small, but detectable, positive correlations with task approach.

As is common in undergraduate science courses, students in this study practiced problem solving using online homework software that provided immediate feedback. Information about students’ hint viewing, giving up, question attempts, and question scores were mined from the online homework database. Using these data, I constructed a measure of learning from errors to investigate how students’ goal orientation and error orientation relate to online learning behaviours. Behaviours differed considerably between high- and low-performing students. Viewing penalty-free hints was not related to achievement, confidence, or number of attempts. Cluster analysis grouped learners by behaviours, and clusters differed in achievement.

These findings could be used to better customize online learning environments for learners with different profiles. Such customizations could improve learning, which, in turn, could enhance students’ experience in organic chemistry and improve attitude toward science in general.

Academic Record

Doctor of Philosophy – Educational Psychology, Simon Fraser University

Dissertation – Analysis of the Relationships Among Goal Orientation, Error Orientation, Online Homework Behaviours, and Learning in Organic Chemistry

Master of Science – Wood Science, University of British Columbia

Thesis – Isolation and Characterization of Lignin from Populus

Bachelor of Science (Honours) – Chemistry, University of British Columbia

Publications


Awards

2011   President’s PhD Research Stipend
2008   Graduate Fellowship