The Design and Implementation of Integrated and Interdisciplinary Information Literacy Instruction

We are developing interdisciplinary active learning lesson plans to teach information literacy in two large required science classes, EUREKA! and PROPEL. Our goal is to use learning gain assessments to systematically assess the effectiveness of different active learning exercises and target areas of weakness with interventions.

Project Design

In 2017, we were invited to teach a one week unit on information literacy in large (180-250 students) MCS classes, EUREKA! and PROPEL. In 2018, we introduced a pre- and post-learning assessment.

Our research question is how much do first-year science students learn from a one-week unit on information literacy?

Lessons Learned

- Student engagement is quite variable across active learning exercises and recitation sections.
  - In spite of uneven engagement, 74% of students in 2017 reported in an attitudes post-assessment that they found a role-playing exercise to be useful for learning information literacy concepts.

- Active learning exercises had to be fairly structured to be successful in these large classes.
  - Our implementation of Think-Pair-Share needs to be optimized. Students used the time to chat.
  - Group exercises worked better if the groups were limited to a few students.

- The exercises often took a bit longer than the time we budgeted for them.
  - In 2018, we gained access to C@CMU and aimed to create lesson plans that built upon, rather than duplicated, that content. This allowed us to focus on more advanced concepts.

- The learning assessment was really useful for understanding pre-existing knowledge and the effectiveness of our instruction and will guide lesson planning in future semesters.

Project Evaluation

We compared students’ knowledge of information literacy concepts before and after a week of instruction in EUREKA! in the fall of 2018.

- The learning gains assessment was administered on Canvas.

- We used counter-balanced design to control for differences in the difficulty of the pre- and post-assessments and order effects.

- Students were assigned version A or B depending on their recitation section and took one version at the beginning of lecture and the other at the end of recitation.

- Students were given immediate feedback on the answers.

- Results showed no significant difference between version A and B.

![Graph showing significant learning gain](image)

Students exhibited a significant learning gain from pre-test to post-test, \( t (181) = 10.71, p <.001, \) Cohen's \( d = 1.04 \). All error bars are 95% confidence intervals on the means.

We thank Ken Hovis for the opportunity to teach in the EUREKA! and PROPEL courses and for conversations about lesson planning.