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Topic Outlines, a tool to focus report writing

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Extended Abstract

Novice undergraduate students can struggle with identifying what topics belong in each section of a lab report, and developing a project that is achievable, often due to a broadness in scope. Working in groups, students were given an excerpt of the methods and results section of a published paper (Czackes et al. 2018) and asked to:

- Determine what question the study was investigating.
- Outline what topics they would include in the introduction section of a paper.
- Outline what topics they would include in the discussion section of a paper.

Students were then given the complete original paper (Czackes et al. 2018) and asked to reflect on the differences between their efforts and the published paper. Guiding questions for the reflection included:

- Do you think the authors missed something you included?
- Do you see why the authors included what they did?
- What did you learn about how to structure a research paper or lab report?

This exercise was delivered after students had completed the data collection for the term lab project and prior to submitting their own discussion sections.

This exercise was developed by the Teaching Assistants (TAs) in the Animal Diversity class. TAs are a second population of students in an undergraduate laboratory. Instead of learning the content of the class, TAs are learning to teach. Providing an opportunity for TAs to develop and deliver a laboratory exercise allowed TAs to practice developing learning outcomes, assessment alignment and collaboration skills.

TAs were given an hour and a half during a lab at the midway point of the term to deliver their exercise. This corresponded with the arthropod lab, which determined the topic of the activity. The timing of the activity allowed the TAs to work on the exercise during part of each weekly TA meeting leading up to that lab. In developing their activity TAs worked to incorporate ideas from various pedagogy and skill development articles that had been discussed in previous TA meetings. The TAs determined that their exercise should allow students to practice the information literacy skill of “an information literate student determines the information needed to achieve a manageable focus” (ALA 2000). The timing of delivering the activity also allowed TAs to develop the marking key, and to reflect on the execution of the activity after delivery.

TAs reported that development of the activity allowed them to 1) practice integrating multiple perspectives to find the fundamental themes that they agreed were the most important to set students up for success; and 2) changed their approach to teaching by ensuring that they know what skill is being worked on in each activity and they now look for alignment between the learning outcome and the student activity instructions.

Keywords: Teaching Assistant training, Assignment development, Lab report writing, Information literacy

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About the Authors

Lara Gibson is a University Teaching Fellow at Dalhousie University. She has been coordinating, developing, and teaching in the second year Animal Diversity class since 2009.

Lucy Burns, Milagros Sanchez, Manuelle Beaudry-Sylvestre, Andrea Gigeroff, Hilary Mann, and Raphaël McDonald were the Teaching Assistants who developed the topic outline activity. Lucy & Andrea were fourth year undergraduate students who had previously taken & taught in the Animal Diversity class. Mili & Raphaël were graduate students who had previously taken & taught in the class. Manuelle & Hilary were graduate students who were new to the class.

Mission, Review Process & Disclaimer

The Association for Biology Laboratory Education (ABLE) was founded in 1979 to promote information exchange among university and college educators actively concerned with teaching biology in a laboratory setting. The focus of ABLE is to improve the undergraduate biology laboratory experience by promoting the development and dissemination of interesting, innovative, and reliable laboratory exercises. For more information about ABLE, please visit http://www.ableweb.org/.

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