New Faculty Seminar: Assessment Sample 1: Heart Walk Through

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Brief Description

In the past, students have had conceptual difficulty retaining cardiovascular function content. To address this, we have been implementing a variety of teaching styles that are different from the traditional lecture format to help students better understand and retain the material. In our pedagogical approach, which we are calling the "Heart Walk Through", students are asked to review prepared lecture notes, diagrams, and video clips prior to coming to class (flipped classroom). Reviewing these materials before coming to class enables students to participate in an interactive classroom discussion and learn from each other (concept engagement). Next students participate in a walk through diagram of the heart, lungs, arteries, veins, and muscles that we have been drawing on the floor with chalk. Students walk through this diagram and act as if they are red blood cells moving through the systemic and pulmonary circulation. While they are acting as red blood cells, they read from an expository text (a form of self-explanation) at every one of the blood flow terms; when they are oxygenated, they hold up a sheet of red construction paper, and when they are deoxygenated, they flip it to the blue side.

The objectives of our lessons are for the students to: 1) identify and define the cardiorespiratory system terminology, 2) demonstrate a basic understanding of the cardiorespiratory circulation of the heart, 3) explain oxygenated and deoxygenated blood, and 4) explain when and where oxygenation and de-oxygenation takes place.

We have been using the following techniques in our classrooms to implement our lessons:
a. Flipped classroom - which replaces the transmissive lecture with pre-/post-class work and active in-class tasks; it can increase students' learning outcomes (Abeysekera & Dawson, 2015).
b. Concept engagement - more personalized teaching while doing interactive activities with the students (Strayer, 2011).
c. Expository text - clear, concise, and organized writing that is used to efficiently translate information to the reader (Kaakinen, Hyönä, & Keenan, 2002, 2003).
d. Self-explanation - a process of generating explanations to oneself, which has been shown to improve acquisition of new knowledge and the integration of it into existing knowledge (Chi, de Leeuw, Chiu, & LaVancher, 1994).

Assessment

Students are assessed using a written exam. Unlike the usual flipped classroom, our exam is given at a future date, not immediately upon entering the classroom. This is because we want to test their retention after the walk through, and their being a blood cell. Instructors determine if students achieve a grade of 70% or above and demonstrate an understanding of the systemic and pulmonary systems.

Below are our results from the last two semesters.

Physical Education Classes

Students who participated in the lesson on systemic and pulmonary circulation and the Heart Walk Through:
SPRING 2015: 65% received a grade of 70% or above.
FALL 2015: 67% received a grade of 70% or above.

Students who did not participate in the lesson on systemic and pulmonary circulation and the Heart Walk Through:
SPRING 2015: 22% received a grade of 70% or above.
FALL 2015: 21% received a grade of 70% or above.

Health Education Classes

Students who participated in the lesson on systemic and pulmonary circulation and the Heart Walk Through:
SPRING 2015: 45% received a grade of 70% or above.
FALL 2015: 48% received a grade of 70% or above.

Students who did not participate in the lesson on systemic and pulmonary circulation and the Heart Walk Through:
SPRING 2015: 9% received a grade of 70% or above.
FALL 2015: 14% received a grade of 70% or above.

Lessons Learned

We would like to use a vinyl diagram instead of drawing the heart on the floor. The vinyl diagram will significantly reduce the amount of time instructors have to spend drawing the diagram on the floor. As of now, it takes about a half hour before class starts to make sure the diagram is drawn correctly on the floor. Further we will be able to ensure consistency across classrooms because all students will be exposed to the same diagram.

Next Steps

We plan to write an applied paper describing our pedagogical approach this summer.

New Faculty Seminar: Assessment Sample 2: Synthesizing Sources in Analytical Writing

The assessment project that I developed for the New Faculty Seminar at Bronx Community College focused on improving the results of the course-level student learning outcome dealing with synthesizing sources in analytical writing in a Spring 2015 section of ENG 11: Composition and Rhetoric I.[1] I had noticed, both in earlier semesters and in an earlier paper required in that ENG 11 class, that students had difficulty balancing their own analysis with paraphrase or summary of the sources that they were using, and the latter thus tended to overwhelm many of their essays. In order to help students reassert the primacy of their own analysis in their argument-driven writing, I made two adjustments to the outline assignment that makes up part of the scaffolding for the final, research paper in the semester.

The outline assignment asks students to provide a thesis, reasons supporting the thesis and a rationale for their order in the paper, evidence supporting the reasons, and at least one objection to a reason and refutation of the objection. In order to encourage more judicious use of source material, I altered the evidence section of the outline to require cited quotations, a paraphrase of each quotation, and an explanation of how each quote supports the reason under which it is listed. My hope was that these requirements would reduce the proportion of source material in any given paragraph, reduce unintentional plagiarism, and increase logical connections between source material and student analysis.

In order to measure the effectiveness of these new requirements, I created a rubric to be applied to the draft of the research paper that measured the outcomes of relevance of evidence, length of evidence, proper quotation integration, meaningful connection of evidence to the central claim of the paragraph in which it appears, proper MLA in-text citation, and correct inclusion of an MLA Works Cited. Each outcome could be classified as highly developed, developed, or emerging. My desired benchmark was that 75% of students would score “developed” in 4 or more of the outcomes. For students who completed the outline assignment, that number was 93%. For students who did not complete the outline but did submit a draft, that number was 50%. These results, along with comparison to my impressions of the previous semester’s papers (for which I did not have data), suggested that the changes to the scaffolding produced positive results in students’ ability to synthesize sources.

Based on the results of this assessment project, I have retained the changes in the outlines assignment and continued to use the rubric that I developed for it as part of my feedback to students.[2] As part of continuing the assessment cycle, one of my goals is to implement rubrics for all scaffolding steps in all of my courses, and another is to align them with the rubrics that are currently being developed and deployed for assessment at the departmental level. Using more and more nuanced rubrics will make it easier to identify areas in which adjustments are needed to improve student learning outcomes and to develop targeted changes to address those areas.

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[1] The text of the SLO used by the English Department reads “Complete assignments, including a formal research paper, requiring use and evaluation of multiple sources, including those retrieved from academic databases.”

[2] Results from a comparable course, ENG 10:Fundamentals of Composition and Rhetoric, were very similar.