

Calibrated Peer Review in Basic Human Anatomy and Physiology

Title III Grant
Faculty Innovations in Learning Project Proposal
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1. Project Description

Title: Calibrated Peer Review in Basic Human Anatomy and Physiology

I would like to implement a learning strategy called Calibrated Peer Review into a major written assignment for the course I teach (Biology 104, Basic Human Anatomy and Physiology). The course is a one-semester, 16-week survey of the human body. The amount of material covered is quite substantial. I have previously taught the content mainly by direct instruction (Power Point lectures), and then assessed the students by objective exams.

Previously, I have tried some simple writing assignments. Lab exercises are accompanied by questions, one semester I did assign regular written homework assignments from the textbook, occasionally essays have been assigned as extra credit or as parts of otherwise multiple choice exams. Through writing assignments I do learn much about where a particular student stands in regard to their grasp of the material. Many students have a limited science background and test poorly on multiple choice exams (which are the standard mode of assessment in traditional biology courses). However, the grading of these written assignments is always, of course, a major time commitment for the instructor, and I also wonder how many students actually do anything about the comments and corrections I have made to their written work.

A more extensive writing assignment that spans over several weeks of the course will also allow students to investigate specific diseases. Squeezing in the 11 human body systems as well as such foundational topics of homeostasis, cells, and chemistry leaves little time for anything but a cursory mention of the many diseases and disorders which are a very important aspect of biology. Thus, my proposal involves a writing assignment on diseases, enhanced by the calibrated peer review strategy.

Calibrated Peer Review is fashioned after the peer reviews which scientists and other academics use during the submission and publication process of papers or grants. Peers are called upon to read through, edit and critique submitted papers. These peer-reviewed papers are then returned to the writer so that the paper may be improved, hopefully for eventual acceptance. In the classroom, this process is adapted to a writing assignment designed by the instructor. (There is also a database of assignments used by other instructors in other courses in the Calibrated Peer Review website.) There are a variety of ways the peer review process can be carried out; for example, the instructor can chose to go through the Calibrated Peer Review website, or she can design a similar process through a web interface such as Web CT. In the formal Calibrated Peer Review process, students complete a first draft of a writing assignment in response to a writing prompt presented by the instructor. Students then review a set of calibrated essays to determine their skill in reviewing (this step may be omitted if the instructor designs the peer review process herself). Next, students are assigned 3 other students' assignments to review. Instructors may provide a set of questions or a rubric to facilitate the review

process. Finally, students are given their original essay along with reviewers' assessments, along with the opportunity to revise their essay. As mentioned above, this standard process can be varied and adapted according to the needs of the students and the course. (For examples, refer to <http://serc.carleton.edu/introgeo/peerreview/examples.html>.)

2. Project Outcomes

- Students research and write about a specific disease or disorder related to the human body systems covered in class. Students will reinforce their grasp of the particular body system(s) and physiological mechanisms related to the disease. Students produce a paper which is much more accurate and free of misconceptions than without peer review.
- Students edit and critique the writing of peers. In the process, students discriminate between misconceptions and accurate descriptions of human physiology and a number of diseases. Students research additional diseases and body systems in order to edit others' writings.
- Students respond to peer review and rewrite their papers. Learning is a multi-step process that involves active collaboration.
- Students gain experience in interactive web-based learning (calibrated peer review program or instructor-designed Web CT format).

3. Assessment Strategies

Students will receive points for completing each step of the project, including the initial writing as well as the reviews they will conduct. Some points will be determined by the peer reviews, and the final written submission will be graded by the instructor for completeness, accuracy and quality.

4. Project Implementation Timeline

This writing assignment will be carried out this Spring 2007. I will introduce the project in general as the course starts. The first of the 11 body systems will be covered in the 3rd week of the course, at which time I will describe the project in greater detail and allow students to begin to choose the diseases they wish to research. Students will complete the first part of the writing assignment, which will be a background of the disease and the body system(s) affected. Students will submit this first part of the assignment to peer review. As the course proceeds, students will then complete the rest of the writing assignment on the molecular/cellular basis of the disease and treatments. During the last few weeks of the course, students will revise their papers for final submission.

5. Faculty Responsible for Development and Implementation

As this is a redesign of a course I currently teach, I will be the faculty in charge of this project. Other parts of the course—i.e. lab assignments, midterm and final exams—will proceed as previously done in the course.

6. Technology and Software Requirements

This project will mostly be done by students as an out-of-class assignment. Students will require internet access and also access to the Web CT site for the course which I have already set up. As this is the first time to try both Web CT and Peer Review, and since the spring semester is already starting, I will most likely use Web CT and not the Calibrated Peer Review website.

References

“CPR –Calibrated Peer Review,” <http://cpr.molsci.ucla.edu/index.asp>

“Peer Review,” <http://serc.carleton.edu/introgeo/peerreview/index.html>

Pelaez, Nancy J., “Calibrated Peer Review in General Education Undergraduate Human Physiology.” http://www.ed.psu.edu/CI/Journals/2001aets/su2_01_pelaez.rtf