

Calibrated Peer Review (CPR)TM Collaboration Among Multiple Schools

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Abstract

Calibrated Peer Review (CPR)TM, a Web-based program that enables students to learn by writing about important topics in a course, was developed at UCLA as part of the Molecular Science Project (an NSF systemic-reform initiative). After electronic submission of essays, students read and assign a score to three "calibration" essays, aided by "guiding questions." When students demonstrate that they are competent reviewers, they read and assign a score to three anonymous peer essays, and finally, to their own essay.

In a class with a very small number of students (say, fewer than ten), anonymity may be lost, and the breadth of the peer review experience may be diminished. In such a case, instructors of similar courses at other institutions may create a combined course in CPR, thereby increasing the student pool to a reasonable number. This is surprisingly easy to do, provided that all instructors can agree on assignment topics and timing.

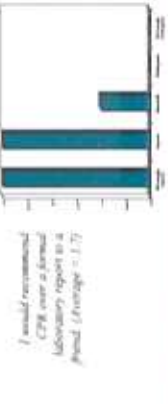
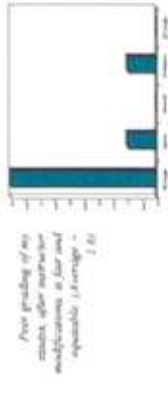
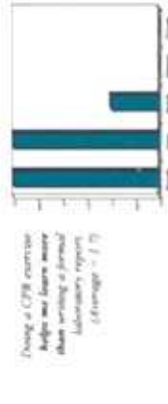
Four Stages of a CPR Assignment

1. Students research (optional), complete and submit an essay
 2. Students evaluate three example essays (one of good, average, poor); guided by specific criteria provided by the instructor
 3. Students evaluate peer essays (anonymously)
 4. Students evaluate their own essays
- A percentage of the total points are assigned to each stage of the process

What does "Calibrated" mean?

1. Students' evaluations of the three example essays are compared to the instructor's evaluations
2. The better a student's review skills, the more weight is assigned to that student's reviews
3. Finally, students rate their own essay

Results: Student Assessment of Learning Gains



Scenario

In Spring 2003, I had an Organic Chemistry II course with seven students. Here is what I did:

- 05 Dec: Sent an email to cpr@msisk.ucla.edu describing my situation, and looking for collaborators
- 06 Dec: Moderator posted a message to the cpr-info mailing list of all instructors using CPR
- 09 Dec: Had received two replies from instructors in similar situations
- Through 06 Jan: Decided upon number and scheduling of CPR assignments
- 15 Jan: Received class list and ID's from other two schools and entered them into a combined class (total number: 23)
- 23 Jan – 10 Apr: Students completed three CPR assignments

All instructors had access to view all students' scores.

Assignments Used from CPR Library

1. Mass Spectrometry-p-Chlorobenzophenone
2. Organic Chemistry Reactivity News Report
3. Retrosynthetic Analysis

Tips and Suggestions

1. Start discussion early, so that you can agree upon assignments and timing, especially since term dates and the order of presentation of material do not precisely coincide.
2. We found that Thu-Mon for text entry and Mon-Thu for reviews and completion worked well.
3. Decide how you want to handle:
 - Late text entries (we limited to one day late)
 - Percent breakout of points for each stage (we used the defaults)
 - Difficulty level of scoring template (we used medium difficulty)
 - Whether to "update reviewer scores based on teacher rescoring" (we didn't)
 - Whether instructors will participate in the assignment (we didn't)

Conclusions

- This type of collaboration across institutions is a straightforward method to introduce a CPR component into small classes.
- The biggest challenge is to match appropriate assignments and timing in several courses.
- Students feel that they learn more from a CPR exercise than from writing a formal laboratory report, while enjoying the assignment more.
- Students gain skills in writing scientifically
- Students become more proficient at reviewing and assessing other essays (results not shown)

For More Information

You may contact the author via email at: garoutte@mssou.edu

You may download a copy of this poster at: <http://2254.185.19.89/arambace2004/poster.pdf>

Calibrated Peer Review Homepage: <http://cpr.molsci.ucla.edu/>

Molecular Science Project: <http://www.molsci.ucla.edu/>

MIDP (Multi-Initiative Dissemination Project): <http://www.cchem.berkeley.edu/midp/>

SALG (Student Assessment of Learning Gains) Homepage: <http://www.wcer.wisc.edu/salgain/salgstructor/>

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