

Case Studies in Peer-facilitated Workshops

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With support from the Howard Hughes Medical Institute's Undergraduate Science Education Program and from New Mexico State University, we have modified the structure of our introductory biology course. We replaced one of our three weekly lectures with a required peer-facilitated workshop. Students in workshops spend most of their time cooperatively evaluating case studies that challenge them to interpret scientific research and apply it to a series of compelling problems; a smaller amount of time is spent developing students' general learning skills. The case studies increase the depth of student learning; the skill development activities facilitate the successful transition of students from high school to the university.

Assessments of the workshops after five semesters produced similar conclusions to initial assessments reported after three semesters in Preszler (2009). Cooperative learning among students in the workshops and interactions between students and peer instructors have been particularly effective at engaging female and under-represented minority (URM) students. Grades have been higher during the 5 workshop semesters compared with 7 pre-workshop semesters (43% increase in the proportion of students earning A or B). This improvement was significantly greater for URM students (increase in A or B: URM = 49%; non-URM = 35%) and female students (increase in A or B: females = 47%; males = 36%). The workshops also increased student retention during the semester, especially for females (females: 51% reduction of course withdrawals; males 29% reduction). Evaluation of paired pre- and post-workshop exam questions indicates that students learn significantly more with the workshop course structure. Furthermore, students who have taken the course during the new workshop format perform better on exam questions that require higher levels of understanding. Most importantly, students recognize these benefits and express a strong preference for the workshop course structure.

Literature Cited

Preszler, R.W. 2009. Replacing lecture with peer-led workshops improves student learning. CBE: Life Sciences Education; reprinted in CBE: Life Sciences Education Highlights of the 2009 Issues pp. 100-110. Available at <http://www.lifescied.org/>