

DIALOGUE

Overcoming Obstacles to Incorporating Experiential Learning into the Geology Curriculum

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Early in my career at The University of Montana—Western, I noticed that by the second week of my introductory geology classes, approximately 30% of the students were no longer attending. One day, I overheard several students talking about their plan of action. “You go to the English class, you go to history, and I’ll go to psychology.” It was clear that students were able to divide the responsibility of their academic schedules because my colleagues and I only required them to memorize and regurgitate lecture notes. Even in labs, the canned exercises appeared to inspire the least amount of effort. Students were not active participants in their education; they had no ownership of their education, and our traditional approach instilled little passion for learning.

To kill the apathy, the faculty in the Environmental Sciences Department began to look for active-learning models to engage students in meaningful projects. We threw out the notion that students must know every factoid and term in the book. Then we identified the most fundamental and important concepts and designed projects that would enhance the students’ understanding of those concepts. Ultimately, we relied upon these projects to generate the need-to-know additional information and terminology.

All the data showed that the system worked. Students attended class regularly and were eager to spend out-of-class time on projects, and employers commented that they had exceptional skills and the confidence to take on projects with minimal supervision. The biggest obstacle to our reforms was the academic schedule, which was clearly designed to efficiently transfer information and terminology from the professor to the students in 50-minute blocks. We asked our administrators for longer blocks of time, and they granted our request, initially agreeing with the benefits of this approach.

We quickly took advantage of this opportunity and scheduled each class with a 50-minute briefing on one day, followed by a four-hour block for project work on a different day. Recognizing that students do a better job when they know their work

will be seen and used by people outside of the classroom, we incorporated a service-learning component that engaged the students in actual environmental problems facing the Dillon community. We started by working on projects in cooperation with local government, federal agencies, and private businesses. In return for financial support for our projects, cooperating agencies or companies received a service at a greatly reduced cost. For example, students in an environmental geochemistry course conducted a regional groundwater nitrate study that saved Beaverhead County thousands of dollars while providing the students with applications of the concepts they had learned in class.

Unfortunately, as more of the faculty in the department used the longer blocks of time, scheduling conflicts arose. With the administration breathing down our necks, we found a time-tested model to eliminate the scheduling conflicts: teach one class at a time (OCAAT). OCAAT scheduling has worked well for Colorado College and a few other private liberal arts colleges, but it has never been tried at a public university in the United States. In fall 2001, The University of Montana—Western, led by GSA member Sheila Roberts, received a Fund for the Improvement of Post-Secondary Education grant from the Department of Education to try the OCAAT model. In fall 2002, 75 freshmen will take general education courses one at a time as the first test of this scheduling model at a public university in the United States. We plan to present the results of Western’s OCAAT experiment at the GSA 2003 Annual Meeting in Seattle.

Alternative scheduling turned out to be the way to overcome our primary obstacle to incorporating experiential learning into the geology curriculum. However, there must be many other solutions to this problem, and we encourage interested colleagues to join us in generating a symposium or session on this topic for the GSA 2003 Annual Meeting. If you are interested, please contact me at r_thomas@umwestern.edu.

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