

A Question of Interest

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Teaching science has been my passion for over forty years. I have offered courses ranging from 3 to 300 students. I have worked as a research mentor and have lectured as a “talking head.” I have often encouraged students and I have, on occasion, bludgeoned them. In the mid 1990’s, I decided to try a new approach to teaching. I designed a course in cell biology that eliminated traditional lectures, exams, a single textbook and even the syllabus.

I took a simple approach to learning, beginning with the question, “How would I approach a new topic I did not understand?” I would check the literature; I would read whatever I could find on the topic. Next, I would talk with peers, and gradually become comfortable enough to talk with “experts.” If my curiosity was not satisfied, I would design an experiment to give me a definitive answer (remember, I am indoctrinated with the scientific method).

The new course began with students searching for a question of interest. The questions were shared with the class and a dialogue began. Groups of students typically coalesced around a topic and began to search in earnest for more information. When a topic arose that the students did not understand, they were given appropriate feedback. This could be a lecture, or it could be a visit to a laboratory. The length of the lecture and the topic were tailored to the immediate problem.

Ultimately, the students formulated projects designed to discover information not previously known. The projects were limited to aspects of cell function and/or structure because of the nature of the course. Details of the course can be found at http://acube.org/volume_24/v24-1p17-19.pdf.

The level of enthusiasm and self-motivation increased remarkably during the semester. The amount of information retained by individuals far surpassed my expectations. But, students are human. The maturity level of the undergraduate students and their ability to use time effectively was less than desired. It became necessary to set time-dependent goals (i.e., mini projects) that could be monitored. The important point, however, was that the students took ownership of their learning and pride in their presentations. As a teacher, my job became that of facilitator and, to some extent, program director, coupled with an occasional “professor” of knowledge.

It was fun. It worked. The students learned advanced cell biology techniques and principles. Equally important, they came to understand they were capable of applying the learning process to whatever query might arise for them.