

In the Oceanography Classroom

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WHY SHOULD OUR STUDENTS BE INTERESTED IN WHAT WE TEACH THEM?

It is comforting to believe that educators, even though many of us are unenlightened as to the derivation of the word “student,” nonetheless hold deep within us a pellucid idealization of “the student” that is very nearly the essence of the word. The word “student,” it turns out, comes from a Latin word meaning “to be zealous,” which is taken from a word meaning “eager attention, study.” Isn’t this what we wish our students to be? Is this not our ideal student? Zealous to learn! Eagerly attentive! Prepared to study! If all our students were to fit this description, we would merely have to present them with the information, and they would take it from there—attentive to what we say and do and zealously undertaking the task of learning. Could this perhaps be how we treasure the memory of ourselves as students? So dear is this idealization to us that, I believe, its allure may involuntarily suffuse our perception of the students entering our class each term. Perhaps subconsciously, we hope that if we will but transfer the information to them, they shall learn it. Sooner or later, however, we come to accept the fact that it does not apply to all of them and that we must do more than transfer information to them. As educators, we very much want our students to learn what we teach them about the ocean. The question that tends to escape our attention is: Why should our students be interested in what we teach them? The question may seem pointless. As long as we imagine we are teaching ideal students, the question is indeed irrelevant and can be safely ignored, for the students will be eager to learn whatever we teach them. When we realize that we are teaching real students, however, the question becomes not only relevant, but critical. Why is that?

The various scientific disciplines that comprise the science of learning have made exciting discoveries over the last few decades, as summarized in the National Research Council report *How People Learn* (1999) and other works. The discovery that applies to this discussion is that, whether K-12 students, college students, or

workplace employees, people learn when they feel a need to know what is being taught, when they can see the usefulness of the material or understand the reason for learning it, when the problems are interesting. That is, they learn when what we teach arouses special attention in them. In short, the answer to the question why they should be interested in what we teach them is that, when they are interested in what we are teaching, they learn. If, however, this question does come to our minds in the classroom, the answer we give ourselves is quite different.

As educators, we can easily forget what it is like to be students. As experts in our discipline, we tend to learn as experts, not novices. We have forgotten the difference. Students enter our course as novices, whether in the 8th grade, first year of college, or graduate seminar. They know little, if anything, about the material to be covered in the course or how it relates to the courses they have taken before or are taking concurrently. They may well have little or no experience or background knowledge on which to build an understanding of what we are teaching. If we do give a thought to the question why they should be interested in what we are teaching them, our answer is usually off target. We tend to say:

“Because it is important!” We also express this answer as: *“Because it is fundamental!”* I think this is the most common answer we give ourselves. But do we bother to tell our students? Even if we do, does being told something is important make it important for the listener? (Say, telling a teenage boy he needs to know how to sew on a button?) The answer to that question is, of course, an emphatic: NO! The very fact that we, as experts, know the knowledge is important to understanding the discipline or practicing it with skill can easily lead us to believe that this fact is self-evident to any student with a modicum of intelligence. But too much of our own learning now is as expert learners in our own disciplines rather than as novices. When was the last time

we found ourselves in the position of novice learner like our students, of being unsure of even what to observe; speculating whether information formed a pattern and, if so, whether or not the pattern was significant; puzzling how to organize the information to make sense out of it; straining to connect it to relevant knowledge we already possess; groping to discover when and how to apply it to new conditions—all this, without a conceptual or experiential scaffolding of support? Students need the right kind of guidance to learn as novices.

“Because it’s in the curriculum!” This answer may convince us, but it is not a powerful argument to use with students. The students ask: “Why do we have to take this course?” We reply, “Because it’s required.” The reason for the inclusion of our course in the curriculum may be as obscure to the students as the reason for including other courses. If the students are not interested in what we are teaching in the course, their usual behavior is to suffer through the course in boredom. Not only are we denying these students the education they deserve, we risk turning them off to the study of the ocean or even to an appreciation of the significance of the ocean to the quality of their lives. How regrettable is the sketch of secondary education we read in the report for 1999 by the University of California at Los Angeles Higher Education Research Institute! This survey of 261,217 college freshmen in the U.S. found that 40% were *frequently* bored in high school. And, if we but listen, undergraduate students will tell us of their boring classes. Graduate students say the same, too, although we might not expect the condition in graduate school.

“Because I’m interested in it!” That we, as educators, are interested in the material is as it should be. But do we convey that interest? Can the students feel our enthusiasm? Our amazement? Our pride? Our awe? Whatever the expression of our interest? Or do we hide our interest under “objectivity”? We may feel it somehow unseemly to express our enthusiasm in the classroom. As a result, the students have no evidence that the course is of interest to us. If it does not interest us, why should it interest them?

“Because I say so!” The heavy guns of exasperation! Their firepower, however, is all smoke.

Students should be interested in what we teach them because that is how they will learn it. The challenge for us is to make the course interesting, or the module if only part of a course. This is our challenge in oceanography; it is also the challenge for instructors in every other course our students take. True, students will not be interested in every subject, but some instructors will be more effective than others in engaging student interest. They will set the stage for students to want to learn how to use the material in those courses. Will those courses include oceanography courses? We can make sure they do.

We can discover and use the relevant experience and background knowledge of our students as the foundation on which to build an interest in the ocean, whether it be a movie they have seen or a trip to the beach, a statistics course without oceanographic data they took, or fluid dynamics concepts they have studied that we now use in a plankton course. We can capture their curiosity with the unexpected, whether comparing the swimming speed of some amphipods with the sprint of a human, painting the once popular—though gruesome—notion that the bodies of sailors drowned at sea would float at a certain level in the ocean, or mentioning the unseen waves that cross the ocean with the speed of a jet plane. In fact, we can set our students to make inquiries about ocean processes and guide the interpretation of their findings toward an understanding of general principles. We can even introduce our students to principles of basic science through the study of processes at work in the ocean. We can ensure that no graduate seminar is boring. In each course, our educational goals must be clear; we must empower the students to learn how to learn about the ocean and transfer that understanding to new situations; we must discover and challenge their misconceptions; we must assess their learning as we go along.

Human beings hold an ancient affinity for the sea. What greater gift for engaging student interest could educators seek? Just possibly we can indeed spark in our students the zeal to learn. Just possibly we can truly be “educators”—“those who lead forth.” 