

# The Art of Engagement

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**E**ngagement (*n*): An act of promising, committing, becoming engrossed, occupied, interlocked, enmeshed, entangled, or otherwise involved.

What engages students? And what engages faculty in engaging them? Both of these questions need our attention as we consider how and why we should teach. The stakes are high. If students do not engage, they are unlikely to learn. And if we do not engage, we are unlikely to engage our students. Furthermore, if we do not engage, we miss out on opportunities to learn ourselves. Thus, the engagement of all involved in the teaching and learning processes would seem to be a worthy and mutually beneficial goal.

Worthy or not, engagement is no simple process. It involves the commitment of self and energy from students and instructors. And even with such a commitment, engagement may remain an elusive goal. These observations serve as the rationale for the assertion made in the title; namely, that *engagement is an art*. Engaging one's students is not simply a matter of dutifully following a set of rules. Rather, like any art, engagement requires creativity and must be developed and continually practiced. In short, the art of engagement is worthy of reflection and study over the entire span of one's teaching career.

## A Philosophy of Engagement

I teach a large general chemistry course for non-science majors. In my experience, these students are smart, multitalented, and themselves engaging, although occasionally a bit science-phobic. Recently, a student from this course e-mailed me:

After taking the final today, I realized how great it felt to take a test after learning about things that I really care about. I never wanted to take chemistry in college—I came into this class thinking of it as nothing more than a prerequisite. But you changed something for me.

What changed for this student? Although several explanations are possible, I propose that at some level, *she engaged*. As is common for many nonmajors in our science courses, she was not taking the class by choice. Yet something changed her mind, and many others over the years have echoed similar sentiments.

My students are diverse. In terms of their area of study, just over a third are from the College of Letters and Science, and many have yet to declare a major. Another group (20 percent) is from the College of Agriculture and Life Sciences, including majors such as biological aspects of conservation and agricultural journalism. Nurses are required to take one semester of chemistry early in their program and usually elect this course. Elementary education majors also often elect this course and co-enroll in a learning community designed to help them prepare chemistry activities for their future classrooms. No matter which areas of study students bring, these are an asset for me to tap. In exploring the complexities of real-world problems, the prior knowledge, interests, and experiences of students serve as a resource for classroom interactions. As my colleague Conrad Stanitski from the University of Central Arkansas once cautioned, “Don't let your students park their majors at the door.”

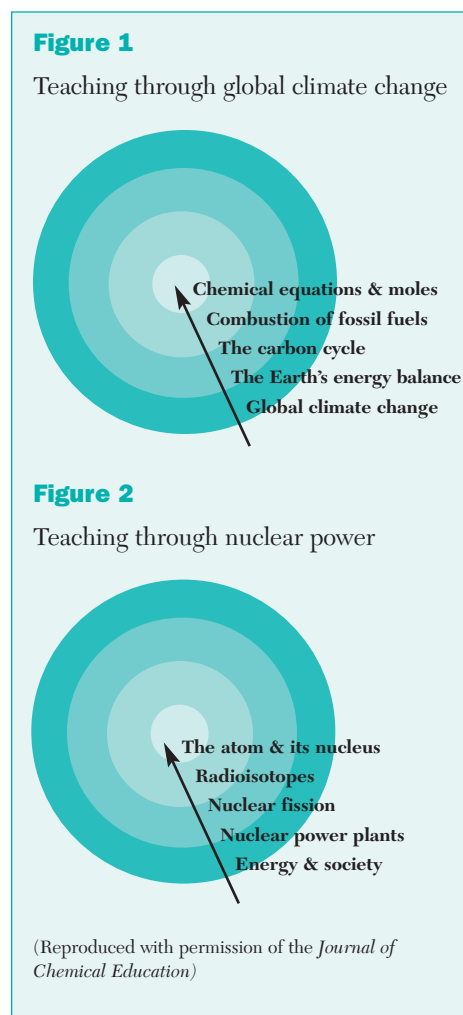
My students also enroll in large numbers, that is, 150 to 300 each semester. In the spring, the number is lower, presumably because of the timing of the course with respect to their major. In either semester, the course carries five credits and has no math prerequisite. The course meets three times a week for lecture, twice for small discussion sections with a graduate teaching assistant (TA), and once weekly for lab. My role includes both engaging the students in the lecture component of the course and creating an atmosphere in which the TAs can most readily engage the students in the other activities of the course.

### Engagement in Content

Finding a “content hook” is one way to engage students in their study of chemistry. To be successful finding a hook, you must know your audience, know your subject, and find a connection that strategically brings the two together. Personally, I have found three types of hooks that work well: intriguing questions; current issues/concerns; and topics that speak to our common human condition, such as life, death, sex, and food.

For example, my approach to nuclear chemistry utilizes all three: an intriguing question (how can radiation both cause cancer and cure cancer?), a current issue (what is a dirty bomb?), and a connection to an issue of life and death (cancer treatment). Given how quickly the world is changing, I continually must change my approaches.

Nuclear chemistry is one of five real-world topics that I teach from the textbook *Chemistry in Context* (2005), a project of the American Chemical Society. This book has a philosophy of engagement: *to teach through real-world issues to the underlying chemical principles*. For example, teaching through the issue of global climate change might be represented as shown in Figure 1, and teaching through the issue of nuclear power as shown in Figure 2.



By design, each chapter of *Chemistry in Context* starts with a hook. It can be an intriguing storyline, a photograph, a pair

of opposing quotes: in essence, anything that has the capacity to engage the reader. Frankly, finding these hooks has been an ongoing challenge for me and for the authors of the text. In part, the difficulty lies in our knowing what might intrigue today’s students. For example, although tales of the nuclear accident at Chernobyl might hook students on the topic of nuclear chemistry, a recent survey of my students revealed that half had not even heard of Chernobyl. Another difficulty lies in the varied interests of students: what interests one may not interest the person sitting next to him or her, and what is successful in catching the interest of students one year may not even appear on the radar screen of those the next. Clearly, selecting the hook involves both a working knowledge of current society and culture and the ability to hit a moving target.

### Engagement at Multiple Levels

Engagement is more than simply selecting content. Equally vital is to simultaneously engage students at several levels, including their lives, our own lives, and the world in which we all live. These levels are interconnected in complex and meaningful ways. Furthermore, as we successfully engage our students, they in turn will engage us. Truly this synergism characterizes teaching as no other profession. Of all these levels, engaging students through stories of our own lives perhaps elicits the strongest reactions to the contrary. I have heard colleagues say that they never would want to reveal personal information to



their students. They speak of the personal discomfort they would incur in doing so or of their need to maintain a proper distance from their students. I also have heard the admonition that we should not talk about extraneous content (such as our own lives), because doing so would be both unprofessional and wasteful of precious minutes of class time.

Although truth underlies all of these arguments, my own experiences in the classroom speak to the contrary. When I teach, remaining distant from my students simply doesn't work. In truth, it never has worked for me, and I suspect it never will work. Most simply put, *if I disconnect from myself, I disconnect from my students*. In turn, they disconnect from me. Assuredly, there are topics that I don't reveal in the classroom; in fact, I may never reveal them to another human being. But this is the exception, not the norm. Most of my hopes, fears, dreams, and life experiences can claim a rightful place in the classroom.

Does this mean that we *must* reveal our innermost selves to our students? Not as such, but I do believe that we should select relevant parts of our lives to reveal. If we allow them to, our personal stories can become woven into the daily rhythms of teaching. Some stories are told one semester; others told another. Some stories get told repeatedly, others never again, and some stories never get told in the first place. The art is in selecting the story that fits the needs of the moment: encouragement, humor, drama, tales of those before us, or our hopes and fears from the past and for the future.

One caution: telling personal stories does not mean “dumping” our personal lives into the classroom. It also does not mean appropriating large chunks of time that distract from the task at hand. How do you evaluate the effectiveness of your own personal storytelling? In part, you learn through experience—feedback from your students will help you gauge the effects. The art lies in telling stories to open paths of communication, especially to those who have not trod the ground before and are glad if somebody else can point the way.

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### The Courage to Engage

Frankly, I never expected to be so engaged in teaching non-science majors. In planning a career path, the possibility of spending so much time teaching those not in my field never crossed my mind. But once my students engaged me, I was hooked, and perhaps rightly so. In my earlier attempts at finding a hook that would engage my students, I found myself on the hook as well.

Parker Palmer writes in *The Courage to Teach* (1998), “We did not merely find a subject to teach—the subject also found us.” I strongly agree. Real-world topics such as nuclear radiation, plastics and recycling, and smog found me. With these and other issues that deeply affect all of us on this planet, I became

engaged. In turn, I hope to engage my students in the complexities of these issues. Furthermore, I would assert that “we do not merely find students to teach, the students also find us.” And once they do, a certain amount of courage is required on our part. Why courage? For at least three reasons:

- First, to engage students you have to know and connect with them. This is not for the faint of heart; you will be drawn into their worlds in ways that are perhaps unfamiliar or uncomfortable.

- Second, once you engage students, they will engage you as well. This engagement has a cost in time and energy, and you will discover the boundaries you can cross, the personal frontiers you can negotiate, and those which (for a variety of reasons) you simply cannot.
- Third, engagement carries an intellectual challenge.

To explain this intellectual challenge, please allow me to offer an analogy. When teaching a first-year course, I often feel as if I were teaching a special-topics course at the graduate level. With the topic of ozone depletion, for example, I must update my syllabus with each new finding: a press release from NASA, an international meeting to amend the Montreal Protocol,



news about the breakup of a Freon smuggling ring, a recent industrial accident with ammonia, or new findings about the chemistry of chlorine in the upper atmosphere. Whew! I sometimes long for the days when I could simply pull the same old titration problems off the shelf year after year. It truly takes courage to commit to a course that in turn commits you to such a serious degree of engagement.

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### Practicing the Art of Engagement

I return to an assertion made in the title: *Engagement is an art worthy of a lifetime of reflection and study.* It comes neither easily nor cheaply, but rather with a personal commitment and a willingness to practice. This art involves making good choices about the content that is taught and about one's personal involvement in the teaching process; it also requires the ability to recognize the subtleties and challenges of the larger learning context for both our students and for ourselves.

Think for a minute about practicing any art: a musical art, a martial art, or a medical art. The "practice" needed for any of these involves a significant commitment of self. Engagement is no exception. With one attempt at engagement, we may

overdo it at too great a personal cost. With another, we may underdo it, failing to connect to either ourselves or to our students. When we expect to engage our students quickly and with minimal effort, we deny the very art form of engagement. By embracing the need to practice, we find paths of engagement that work for us, for our students, and for the world that connects us.

Any art also requires a willingness to enter it as a beginner. Beginners can allow

themselves to feel clumsy. With their minds and hearts set on the goal of improving their practice, beginners can act ineptly or ungracefully. Beginners are free to seek the counsel of teachers and other experts. Fortunate is the beginner willing to practice in the company of one who shows mastery of the art! Equally fortunate is the expert who can hold the openness of "beginner's mind." If we fail to embrace our status as a beginner, we lose the freedoms we need to learn.

### The Challenges

A recent issue of *Chemical & Engineering News*, the weekly journal for members of the American Chemical Society, reported on a conference aimed to reform the chemistry curriculum.

The speakers addressed topics relating to the curriculum that we offer our chemistry majors. One speaker, Judith A. Ramaley, then assistant director of the National Science Foundation Education and Human Resources Directorate, pointed out that

Major curricular reform must be grounded in a clear institutional mission and a coherent educational philosophy. Such reform is not about transmitting the knowledge of chemistry. *It's about drawing people into the world of chemistry.*

I couldn't agree more. And for both our majors and our nonmajors, I also would add: *"It's about drawing chemists into the world of people."* Engagement of our students cuts both ways. We must draw our students into our intellectual world. But we as teachers must be drawn out into the world of our students as well. At issue here is the human journey we all share. Our chemistry courses, especially those for our students studying other liberal arts, need to connect with this human journey. ■

### References

- Eubanks, L. P., C. Middlecamp, N. Pienta, G. Weaver, and C. Heltzel. 2005. *Chemistry in context*. 5th ed. Dubuque, IA: McGraw-Hill.
- Palmer, P. J. 1998. *The courage to teach*. San Francisco: Jossey-Bass.