

2012 Distinguished Teacher of the Year

Dr. Deborah W. Louda
Associate Professor of Clinical Biomedical Science
Charles E. Schmidt College of Medicine

The "How?" and the "Why?" of Teaching

I am truly honored to be here at this Convocation, and I would like to congratulate all the faculty members and students who are being recognized today for their accomplishments. I want to thank the FAU community for supporting this award for teaching, especially the students who volunteered their time to serve on the selection committees.

There are a number of people who deserve to be acknowledged, starting with my husband, Dr. Bill Louda, whose love and support are so essential and so treasured. I want to thank all my colleagues in the College of Medicine and College of Science, with special gratitude to my esteemed chemical education friends Dr. Jerry Haky, Dr. Donna Chamely-Wiik, Dr. Nancy Romance and Dr. Evonne Rezler, from whom I have learned so much during the many wonderful years of our collaborations. I am also grateful to Dr. Lindsey Henson, Dr. Barry Linger and Dr. Ana Maria Azzarolo, who have shown me the unique aspects of medical education and helped me up a very steep learning curve during the past year. Finally, and most importantly, I thank all my students, past and present, because they, more than anyone else, have taught me how to teach.

Which brings me to my philosophy of teaching. And since my teaching philosophy has evolved over the 30 years I have been at FAU as a biochemistry professor, I thought it appropriate that I describe what has transpired during that journey.

Like many college professors, I came to FAU and was expected to teach without ever having had any formal training in teaching. So I did what I imagine many young professors do and modeled my teaching after that of professors whom I had found effective and enjoyable. I concluded that the essential features of a good lecture were clear organization and presentation of the material, combined with enthusiasm and concern for students. My focus, however, was primarily on the content, the "What?" of teaching. I would update the content of my courses each year to include the latest developments in biochemistry, come up with better ways to explain difficult concepts and review the specific topics I covered, all within the confines of a traditional lecture. I

received generally good teaching evaluations, and so I might have continued teaching the same way throughout my career except for one specific turn of events.

In the 1990s, chemistry departments nationwide were experiencing a crisis. The percentage of first-year general chemistry students who were failing or withdrawing from the course was approaching 50 percent, and many of these students were abandoning the pursuit of a degree in science. This caused the faculty in many chemistry departments, including our own, to seek ways of improving student outcomes by examining their teaching methods, the “How?” of teaching. Chemists became familiar with research on teaching and learning methods and started applying these methods in the chemistry classroom. Here at FAU, the result of the faculty’s self-education was Project ChemBOND, which encompassed major revisions of several basic chemistry courses. The content of lectures was reduced and refined to focus on key concepts, and connections among concepts were emphasized to allow students to scaffold their learning into a logical hierarchy of knowledge. Different elements of a course, such as lecture and lab, were coordinated to reinforce important ideas and present them in several different ways. Alternatives to traditional lectures, such as Peer-Led Team Learning and writing exercises, were developed and integrated into courses. A common thread among all these changes was an emphasis on keeping students motivated and engaged in the learning process, because research in the cognitive sciences has shown that learning in any discipline is an active process of linking new knowledge with prior knowledge to build conceptual understanding. Yet for many students who experience traditional teaching methods, learning becomes a predominantly passive process that is not the best environment for promoting student achievement. Interactive formats, where students participate in activities such as problem-solving or group discussion, foster learning more effectively. In fact, student outcomes in chemistry courses here at FAU and at other universities measurably improved when these types of revisions were instituted.

Like many teachers, I had some initial resistance to making these kinds of changes in my teaching. After all, most of my learning in college had occurred in courses with traditional lectures, and I was comfortable with that format. I was also concerned that these interactive methods would take time at the expense of course content. It turns out that I was right about the time that incorporating interactive activities would take. I was also right that the consequence would be the elimination of some content, but I was wrong to be concerned that this change would have an overall negative effect. The most surprising thing I have learned about teaching is that when it comes to the classroom, less can be more. Filling a lecture with all the facts I think my students should know is not useful, because the idea that “if I say it, they will learn” is not how learning occurs. Instead, I can make my lectures an effective learning experience by keeping the students

engaged while helping them build a solid foundation of essential concepts and a framework of how these ideas fit together. Then, with that background, the students themselves can easily finish the structure by adding the specific, detailed information. And the final measure that this approach works when it comes to the “How?” of teaching is seen in the students’ response, through their questions, interest, performance and feedback.

The result of exploring different teaching methods was my discovery that effective teaching does not end with picking one of the many active learning methods and then incorporating it into my classes. There is a further question of deciding which method to use and how to apply it, and that brings me to the “Why?” of teaching, because the “What?” and the “How?” ultimately depend on the “Why?” The reason for my teaching is to develop desired characteristics in my students, and defining those characteristics is the basis for deciding what and how I teach. One obvious characteristic is the acquisition of content knowledge in the discipline, but there are other important abilities that instruction should promote, such as critical thinking, problem solving, creativity, self-directed learning and communication skills. If I want my students to be critical thinkers but the only time in my course that they encounter a question that requires critical thinking is on an exam, I am not likely to succeed in developing that quality. If I want my students to be self-directed learners and then give them a complete, specific list of the facts they are expected to learn, there is again a major disconnect between what I am doing and what I want to accomplish. Answering the “Why?” of teaching determines the abilities that are fostered in my students during their time in my classroom.

The student selection committee for this award posed a very insightful question during my interview. They asked me, “What are the qualities of a distinguished teacher and what one question would you ask the nominees for this award?” I took a minute to think about that, because there are many excellent teachers at FAU who can effectively explain the content of their discipline and who care deeply about their students. The answer I came up with is that a distinguished teacher wants to become a better teacher and so continuously examines and tries to improve the effectiveness of his or her teaching, and the question I would ask is, “How and why have you changed your teaching in the past year?”

Now if I had more time today, I would at this point practice what I have been preaching and ask you to think about that question, discuss it with your neighbor for a few minutes and then report back on the ideas you generated. Since we can’t do that, I would encourage everyone who is a teacher, whether in the role of a professor, a parent or a classmate, to carefully consider not only what your students should know, but what they should be able to do, by reflecting on the “How?” and “Why?” of teaching.