

Feature Educator Highlight

Morris Maduro

Interviewed by Laura L. Mays Hoopes

Department of Biology and Program in Molecular Biology, Pomona College, Claremont, CA 91711

Note from the Editor

Educator Highlights for CBE—Life Sciences Education show how professors at different kinds of institutions educate students in life sciences with inspiration and panache. If you have a particularly creative teaching portfolio yourself, or if you wish to nominate an inspiring colleague to be profiled, please e-mail Laura Hoopes at lhoopes@pomona.edu.

LH: Morris, what has been your most exciting experience with teaching so far?

Maduro: Without a doubt, being a teaching assistant for a large class of around 200 students starting in 1995 was the most exciting. As a TA, I was free to develop my teaching style and to become comfortable in front of large groups. I gave students new resources, developing online content and learning how to prepare students for the long-answer exams. One of the most valuable things I learned is that humor can be effective in breaking barriers between teacher and student. Students are drawn into a collective positive experience, and this helps me to keep their attention. I had this position for several years, so I could make changes from one semester to the next. The performance of the students improved each time I taught the class. I really used the input on my teaching evaluations. These many years of teaching experience made all the difference to me in my transition from postdoc to full-fledged junior professor. I learned how to manage my time to balance research with teaching and how to connect with students. My basic teaching style provides as many resources as possible for students to learn, emphasizing key principles through repeated reinforcement and integration of material, using humor and technology as engagement tools, and nurturing a culture of scholarship.

LH: You've been at UC Riverside since 2003. Have you participated in a teaching activity there that you've found particularly interesting, worthwhile for students, frustrating, or challenging?

Maduro: Clickers are all of these. Shortly after starting at UC Riverside, I saw a presentation by Bill Wood on the use of audience response systems as an educational tool. I immediately saw how clickers could help engage students. I was one of the first in my department to incorporate their use into my courses. They have good points, and I'll continue to use them, but there have been some frustrations.

LH: Can you give me an example of how clickers worked well for you?



Morris Maduro, Assistant Professor of Biology, Department of Biology, University of California, Riverside, Riverside, CA.

Maduro: One of the best times I remember was in my winter Developmental Biology class after a lecture on fertilization. I showed the students a news story from *Time* about a 66-year-old Russian professor who gave birth to a premature baby, after nine years of trying, via assisted reproduction. Their clicker question was something like this: Weighing risks and benefits, do you think it's ethical to allow someone this old to use assisted reproductive technology? Answers ranged from (A) No, there should be an age limit. . . . down to (E) Yes, anyone has a right to procreate. I think most of the students in the class felt that their opinion was typical of the whole class. The histogram with the responses came up, and the students gasped. It was completely flat, about the same number of A, B, C, D, and E answers had been chosen (Figure 1). That gasp was a great

In early 2005, a 66-year-old woman gave birth to a 3-lb 3-oz. premature baby girl. She had been undergoing fertility treatments for 9 years. Weighing the risks and benefits, is it ethical to allow someone this old to use assisted reproductive technology (ART)?

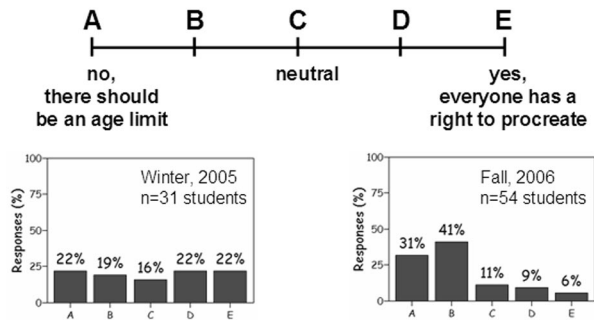


Figure 1. Histogram of answers about assisted reproduction at age 66.

moment. I couldn't have achieved that result any other way. What if I asked people to raise their hands? No way! So this exercise really made them think and showed them that their opinion was only one of many possible ones for students taking Developmental Biology.

LH: That sounds like a wonderful experience. What has made you feel frustration when using clickers?

Maduro: It's the grading. In my classes, I don't think the students will respond well to clickers if their answers don't have an effect on their grade. The biggest problem is cheating, where one student uses multiple clickers, effectively giving "credit" to students who were not there. Based on what the TAs have observed in class, this type of cheating is rampant, and it frustrates students who do play by the rules. In my 300-student course, my coping strategies are to give clicker responses only a small percentage of points overall (<5%) and to try to have TAs be vigilant, but the success of these strategies is limited. If you teach the same course every year, students can easily capture questions with cell phone cameras and give them to their friends. Hence, I have to change the questions from year to year. In my 60-student class, my TA takes attendance so I can simply deduct credit from those who are absent.

LH: I can see why the grading is frustrating. But you plan to continue using clickers?

Maduro: I do have a very positive experience overall with students using the clickers. I particularly like to use them for opinion questions, asking students to apply what they have learned to social issues. This kind of personal involvement in their courses is one of the best ways to engage students, and the clickers allow students to respond anonymously.