The "Perfect Teacher" and the Story of His "Zero Defects" Project

As educators, we are concerned about motivating our students to learn; there are several ways of achieving this. I would like to share with the readers of Advances in Physiology Education a somewhat idiosyncratic strategy I used with the intention of motivating students to learn physiology. It has been 5 years now since I started teaching physiology revision courses at the Sai Supreme Postgraduate Medical Entrance Examination Training Center for Doctors in Chennai, India, for doctors (with a Bachelor of Medicine and Bachelor of Surgery degree) who are preparing for entrance examinations to enter postgraduate residency programs in India. In these very competitive entrance examinations, doctors field multiple-choice questions (MCQs) of varying difficulty from all basic and clinical sciences. Older versions of my physiology revision course used to last 30 h, and they occurred for 2.5 h each weekend over a 3- to 4-mo period. These and other lectures in other specialties in this training center were, by necessity, large classroom sessions sometimes consisting of 400 or more students.

I used to teach physiology systematically using MCQs, reviewing one organ system each session. I wrote all the MCQs and answer explanations myself. The questions were presented using PowerPoint slides. Often, I would walk around in the classroom with the microphone, encouraging students to respond to my questions, attack me with questions when they wanted to, or point out errors in my presentation. No matter what I did, however, I wasn’t sure how motivating all these invitations were and I was not very satisfied with the amount of interaction I had with the students. However, it occurred to me that if I could challenge my audience that my teaching services were error free, I would come under greater scrutiny. Thus, at the beginning of the 2005 course, I boldly declared to my audience:

Throughout this physiology course, you will not find any mistakes whatsoever in the material you receive or the answers and explanations I give for the questions written by me. If, in the rare instance, you do find a mistake, please feel free to point them out to me; you will be rewarded for that and, importantly, your colleagues will be benefited as well.

I should clarify to the reader that I prepared the course material and PowerPoint slides as carefully as I could, checking answers and everything else over and over again, and I delivered my presentations and responded to student questions as best as I could. Unfortunately, I do not have a quantitative estimate of my students’ responses to this challenge of mine. However, I can clearly recall that students began to come to me with more relevant questions, demanding explanations, contacting me often by e-mail with a list of questions, etc. In many instances, they proved that some of the distracters in my MCQs were invalid. On some occasions, they challenged the line of reasoning I presented for my answers. Invariably, they contacted me with references in support of their points of view. Once I was convinced I was wrong, I acknowledged them in the very next session (also thereby correcting errors) and rewarded the student(s) who pointed them out. By the end of the 2005 course, as many as 28 errors were acknowledged (although these included many typographical errors in the answer fields of the study material as well). In reviewing my students’ feedback on this course, I noted they appreciated the zero-defects venture very much.

Upon reflection, I believe that in addition to rewarding students for their contributions, the fundamental motivating factor for increasing their participation was likely the challenge posed to students’ egos by my zero-defect strategy. Being only 5 or 6 years older than my students may also have enhanced the effect of this challenge to their egos. At the end of the course, when all the good work was done, I did acknowledge to my students that the intended purpose of the zero-defects venture was only to motivate in-depth learning and not to demonstrate that I was a perfect teacher. However, there were other spinoffs as well: I think the pressure of this project made me a better teacher. My understanding of physiology and the quality of my course material have improved considerably, for which I am always grateful to my students, who are also my teachers.

E. S. Prakash
School of Medicine
Asian Institute of Medicine, Science and Technology
Bedong 08100, Kedah Darul Aman, Malaysia
E-mail: dresprakash@gmail.com
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