

Richard N. Zare for the PAESMEM Award

Mentoring (two-sentence quote):

Imparting inspiration rather than information is the key to good mentoring. I want to bring out people's passion for what they are doing, because the pursuit of science is powered more by love than by any other human emotion.

Mentoring Statement (one page, Arial 11 font)

What drives me is discovering how nature works and sharing that discovery with others. As a youth, I was an awkward, antisocial animal avoiding human contact, a truly obnoxious individual. As I have aged, I have come to the realization that people matter so much to me. Although doing research is a highly creative process, the joys of new knowledge are not just about satisfying personal curiosity but also about sharing that knowledge with others and hopefully finding something that helps others to accomplish their own goals.

For me, teaching has always been a secret weapon of doing research. In teaching you are forced to question deeply what you know, why you think something is known, and how you can explain that to others in a convincing manner. This same questioning process is behind how I do research. So teaching and research naturally reinforce one another.

In teaching and in counseling, the most important thing is to inspire rather than to inform. Facts can be found readily with good search engines as well as by asking appropriate knowledge experts. But the drive to find the facts does not come from search engines or from knowledge experts. It comes from a person's passion about exploring some topic. You might wonder what this research chemist knows about love, but I can tell you that the power of love propels more creativity and accomplishments than any other human emotion. I try to foster creativity by encouraging people's intellectual passions. I find that sometimes what is needed is to build confidence, particularly among members of underrepresented groups, because few good things come easily and often it is only by persistence that we succeed.

The learning process is traditionally measured by the ability to answer questions. Real learning, however, comes from the ability to pose meaningful questions – for it is by questions that we shape what is worth knowing and what is worth pursuing. Developing a questioning attitude is a key attribute of the successful researcher. I urge my students to pay attention to the wisdom of Peter Pan and never aspire to grow up! Everyone is born with curiosity about the world around us and often adults treat this as childish and annoying. But keeping this sense of curiosity is vital to success in life. You need to be playful, to put forward bold hypotheses of how things might work, and then you immediately need to question whether these hypotheses actually make sense. If you believe too easily, then you fool yourself; if you are too critical, then you never dare to create for fear of being wrong. Therefore I advocate becoming a “contented schizophrenic,” believing and not believing at the same time. It is important to give up control and certitude for the chaotic messiness of creating and testing new ideas. I claim that this road leads to great fulfillment.

I think few painters would paint or musicians play an instrument if only the painter were allowed to view the painting or only the musician could hear the music. Similarly, the most fun in research is to share with others those ecstatic moments of discovery, that special feeling of a-ha, when the pieces of a puzzle all fit together neatly. It is a joy that endures.