

February, 2003 - Leonard Sciorra, Schuh Professor of the Health and Natural Sciences

A Historical Perspective Can Enhance the Lecture Presentation

Everyone likes a good story. When I am teaching science I try to attach an interesting story to the facts and equations I am presenting. The history behind the scientific topics helps to capture the students' attention and helps them better understand the information. Science is full of great stories of exploration, experimentation, revolutions and discovery.

This is why I always try to teach science from a historical perspective, and I try to emphasize the research and researchers that are behind the discoveries. I place the scientists in a historical context, and I describe who they were, where they lived, what was considered to be the prevailing scientific opinion of the time and what were the obstacles they faced when their research shattered this prevailing view.

So genetics starts with the life story of Gregor Mendel and how even the greatest research can sometimes be ignored until the right time in history comes for others to see the wisdom of a great master. If I discuss bacterial infections, I mention the life of Louis Pasteur and his efforts to convince the French scientific community that microbes can cause disease. If the topic is radioactivity, I tell the students of how Perrier and Marie Curie first found each other and then found radium and the Nobel Prize. Or when DNA is the subject, I always tell the story of the young American whiz kid named James Watson and the middle-aged physics student, Francis Crick, who were in the right place with the right data to make the discovery of the century that revolutionized biology. With each topic I discuss, I try to present a brief history of the times, the people and the events that surround it; and I stress that theories can change with revolutionary consequences.

I also give the students exercises that will make them think of a scientific topic in connection with historically important research. I ask them to write a paper on a Nobel Prize winner, where they must place the research in a historical perspective. I also ask them to write a paper showing the historical linkage between great contributors. This is done so the students can appreciate that discoveries and research are not done in a vacuum. They should learn that great research influences other great research and also influences events outside the world of science. The electric rivalry between Tesla and Edison, the high atomic stakes between Einstein, Roosevelt and Heisenberg, the friendship turned tragic animosity between Edwin Armstrong and David Sarnoff, and the link between Pablo Picasso and Jonas Salk, are just a few examples that one could use for these papers.

I would like the students to see great science as a process done by masters and not just a collection of disjointed facts and equations. The idea is to bring scientists to life and to show the students that the science they are learning can

have great human drama. The students should learn that the conversation of science is spoken through the lives of these masters and we are all the beneficiaries of their efforts.