Beyond the Political, but Toward True Meaning Making

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VEXATION

The context for my vexation is that in May 2007, Florida appointed a group of scientists, science educators, and classroom teachers and administrators to revise the state's science standards. In the past, although "change through time" and other concepts related to microevolution were discussed in the standards, the term "evolution" did not appear, and overall treatment of this theoretical framework was at best cursory and underdeveloped through the eyes of a biologist. This limitation was one of the many addressed in the revisions of the standards (for which I served as a writer and a framer). In the revisions, evolution was described as a "Big Idea" in biology and "the organizing principle of the life sciences." Review of this document elicited a huge amount of public participation, with over 10,000 members of the public offering written comments and verbal critiques in a host of public meetings. Much of this public comment focused solely on evolution, ignoring the rest of the standards, and these comments were not enthusiastic.

In a newspaper poll conducted just before the final vote on the standards by the State Board of Education, Twenty-nine percent of the respondents explained that evolution is one of several valid theories for biological diversity. Another 16 % said that evolution is not supported by evidence. Nineteen percent described that evolution was not valid because it is at odds with the Bible. Given the public outcry and fearful that the standards would not be adopted, before the final vote the standards were amended to refer to evolution as "the scientific theory of evolution" and "***an*** organizing principle of the life sciences" [emphasis mine]. Further, a number of other theories were identified as such in this version, including cell theory, plate tectonics, and thermodynamics. In the *Scientific Practices and Nature of Science* section of the documents, a scientific theory was described as "a well-supported and widely accepted explanation of nature and is not simply a claim posed by an individual. Thus, the use of the term theory in science is very different than how it is used in everyday life." This version of the standards was seen by many as a compromise with religious groups, and the standards were accepted by a close (4 to 3) vote. This acceptance of the standards was closely followed by a strong push in the state legislature to pass an Academic Freedom Bill, presumably reinforcing the right for teachers to "teach to the controversy" in their disciplines, in effect allowing for discussions of intelligent design and its precursor, creationism, in the K-12 classrooms. This bill that did not pass, although it is important to note that in our state bills often are considered for a number of years before they eventually passed.

Throughout all this, the press was very active and very influential in shaping public opinion, and public opinion was very influential in shaping the science curriculum. Here lies my frustration. The press, as personified by local and regional newspapers, blogs, TV reporters, were interested in controversy, in anger, and shouted words. When presented with a conciliatory stance, or a request to examine the wider context, the reporters quickly lost interest. After a 45 minute conversation in which I worked to explain the role of theories in science, what was quoted was a "sound bite" such as [an I quote, sadly] "We're not talking about teaching wild, wacky stuff here, but we're talking about teaching the science the rest of the world knows." Not the tentative nature of science, the role of theories as providing great explanatory power, not that theories do not become laws once they "graduate." This pattern of ignoring the complex but potentially illuminating explanation in favor of a sharp, divisive sound bite was repeated over and over again in each of my interactions with reporters from many venues (even a reporter from AAAS). Thus, what was reported in the press was the extreme of each side, positions from which there was no compromise or grander understanding. So for the public, stereotypes of arrogant scientists and ignorant religious conservatives were reinforced. I fear the same conversation will arise in next year's legislative session. The same conceptual arguments will be repeated, the same stereotypes reinforced, leaving no room for deeper understanding on either side.

A VENTURE

In the past, I have viewed the press as an agent of education, as a venue from which insight and meaning was to be sought. During the thick of this controversy, I have come to view the press more of a business, a project whose intent is to sell advertising space (either through papers or blogs). And what sells more papers, what is thought to invite more readers, is a controversy—not its resolution. While this is not the case with all news outlets (we have a paper in the state whose reporters seem to grow in their understanding of a variety of educational issues), my reading of the press over the last two years seems to support this assertion.

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Frankly, I have every expectation that the issue of evolution and other controversial issues to re-emerge in the goings-on of our state. There is already talk of a creation of a more "ready-for-work oriented" set of standards, and many of the writers and framers from the last effort view this as a veiled attempt to once again re-write what is viewed as legitimate science in our state. Thus, what is a venture that may offer the hopes of a "middle ground", something to reinforce our middle grade standards that science is only one of many legitimate ways of understanding the world, one that has particular requirements and limitations. Could we require all voters, newspaper writers and legislators engage in a nature of science class thus building a shared social capital about the strengths and limitations of science? Or more modestly, could we expect all State Board of Education members to actually read thoroughly and ask questions about all of the science standards (including the nature of science standards) and not focus solely on evolution? Ah, such is the stuff of dreams.

One venue I've pondered is approaching my local paper and offer an editorial once a month to offer a more long-term view of the issue. Unfortunately, I have seen colleagues at my university engage in this activity on a semi-annual basis, and it quickly becomes an intensive activity, one in which the authors become perceived as 'political players', as seeking more social capitals for themselves at the expense of the common good. This role often isolates the authors from the very communities they seek to influence. Perhaps this approach could be more effective (and seen as less self-aggrandizing) if it was done in tandem with local biologists, teachers, and religious leaders? But how would one begin such a 'public' conversation and what should be the boundaries of it?

I have also pondered constructing a website featuring more 'middle road', non-scientistic, evolutionarily rich curricula, with a listserve so that teachers can ask questions about the teaching and learning of evolution from a variety of stakeholders (philosophers, biologists, theologians). Drawing from well designed curricula such as the *Understanding Evolution* website (http://evolution.berkeley.edu/), *Evolution and Nature of Science* Institute (http://www.indiana.edu/~ensiweb/home.html), *Evolution and Creationism* by the National Academies (http://www.nap.edu/openbook.php?record_id=6024O), the intent of this site could be to highlight a contemporary view of the nature of science, and show (much as Larry Scharmann and Mike Smith's work has done) a nonscientist approach to teaching any aspect of science. By "scientism" I refer to the view that science provides the only useful, legitimate approach to understanding our world. A non-scientistic approach to the teaching of science allows the learner to understand the strengths and limitations of science, the way in which the methodological assumptions of science places boundaries on what science can legitimately consider, Southerland, 2009).

But as I approach this venture, I am left with questions. How can I portray the various views of this controversy (which I view as only superficially about the appropriate treatment of evolution, and at its basis is about the role science can and should play in our lives and what should be considered as science.) What communities should be included? Who has the necessary social capital in each of these communities to be heard by various stake holders? How can these conversations be mediated? Given my own strong views on the subject, how do I go about honestly and effectively portraying the contradictory views of these subjects? What should be included in this "middle ground"? What is important to include for local teachers and how is this different from what is needed by the general public? Finally, how can I best make these resources available to members of the press, so that they may be more informed as they approach upcoming legislative sessions?