Battle over Science in Louisiana

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Introduction

Science is under attack around the country. Tennessee, Florida, Texas, Alabama, and Louisiana are just some of the states where science is attacked by their respective legislatures each session. In each state, opponents of science continually attempt to redefine science. They claim that the current definition of science, that is “[t]he use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process” (National Academy of Sciences 2008:10), is inadequate. While I acknowledge that there is discussion on what the exact definition of science should be, there is a considerable amount of agreement that science can only address natural phenomena. These attacks on evolution and now human-induced global warming are just representative of the real agenda: to allow supernatural explanations into the definition of science. The opponents of science fail to understand the potential impacts of their campaign. Their efforts won’t affect only the current generation; instead, their antics could very well guarantee that generations of citizens will remain ignorant of the process of scientific inquiry and the benefits that it can bring.

Louisiana’s Attack on Science

To date, Louisiana has pushed this attack further than any other state. On June 25, 2008, Louisiana Governor Bobby Jindal signed Senate Bill 733, a stealth creationism bill dubbed the Louisiana Science Education Act (LSEA), into law. The introduction and passage of the LSEA is the main event that started this most recent attempt to redefine science in Louisiana. The passage of the LSEA is well documented (http://lasciencecoalition.org and http://ncse.com/news/louisiana), so it is not within the scope of this article. Instead, this article will focus on several events that started in September 2010 and ended in June 2011 and use those events as evidence for the continued attempts by the Louisiana Family Forum (LFF), the state affiliate of the religious right organization Focus on the Family, and others to redefine science in order to serve their narrow agenda. For more detailed accounts of what else has happened in Louisiana since the passage of the LSEA, see the Louisiana Coalition for Science website (http://lasciencecoalition.org).

Textbook Adoption

Louisiana’s latest adoption of science textbooks occurred in 2010. Since this process was open to public comments, it provided another opportunity for opponents to attempt to redefine science. All twelve members of the High School Life and Environmental Science Committee—eleven teachers and one curriculum specialist—Independently evaluated the proposed textbooks from May to September. From June to September, the textbooks were on display at various public libraries throughout the state to allow the public the opportun-
nity to review them. Any person wishing to make comments, either positive or negative, filled out and submitted a form to the State Textbooks Office so their comments could be taken into consideration when the adoption committee met to discuss the textbooks. Publishers were given the opportunity to respond to each comment and submit their responses to the adoption committee.

The adoption committee met for a week at the end of September to review each textbook, citizens’ comments, and publishers’ responses. During this week, the public was also given the opportunity to present additional comments to the members of the adoption committee. This was followed by a State Board of Elementary and Secondary Education (BESE) meeting in October in which all textbooks recommended by the various committees were accepted for adoption—except for the textbooks recommended by the High School Life and Environmental Science committee.

The vote for these textbooks was deferred to allow for the Textbook/Media/Library Advisory Council to meet and reread the public comments. This was the first meeting of this type in several years. The council’s purpose was to indicate if they agreed with the decision of the original adoption committee. This advisory council meeting was open to the public and was held on November 12. The last event in the textbook adoption process was the BESE meetings from December 7 to December 9.

**Public Comments on Textbooks**

On July 22, 2010, retired judge Darrell White, co-founder of the LFF, wrote a letter to the editor in the *Hammond Daily Star* in which he encouraged “Louisianans to visit their local libraries to review and comment upon these science texts.” This was followed by a call to action from the LFF on two separate occasions: in the August 10, 2010, edition of its *Family Facts* newsletter and the Reverend Gene Mills’s *End of Week* newsletter on September 10, 2010. The LFF even provided the official comment form as a download to their supporters. (The LFF was the author and primary supporter of the LSEA.)

This led a small group of people to submit several objections to the proposed biology textbooks because of how they treat evolution. The critics complained that the textbooks “put too much credibility in the theory of evolution” (Sentell 2010). Fourteen people submitted a total of 38 comments about the life science textbooks. Of those fourteen people, only one was in favor of evolution. The other thirteen were clearly against the teaching of evolution. Two even went so far to say that the textbooks should also teach “intelligent design” (ID) alongside evolution. The effect on science education of including ID is perhaps most clearly articulated in *Kitzmiller et al v Dover Area School District* in 2005, in which “Judge Jones ... concluded that intelligent design is not science, and that the only way its proponents can claim it is, is by changing the very definition of science to include supernatural explanations” (Goodstein 2005; emphasis added).

The main players, led by Darrell White, never mentioned anything about creationism or “intelligent design”. Instead, they focused on what they called the “weaknesses of evolution”. Additionally, Darrell White and his son, Winston White, included an article by Stephen Meyer and Michael Keas entitled “The Meanings of Evolution,” which argues that there are six different definitions of evolution, with each comment form. In my opinion, the sole purpose of including this document was to confuse the members of the adoption
committee. It is interesting to note that all of these written comments came after Darrell White’s letter on July 22 and an overwhelming majority of the comments, 26 of 38, came from LFF supporters.

**Public Meetings: Textbook/Media/Library Advisory Council**

There were two public meetings throughout this process that are of interest. The first was the Textbook/Media/Library Advisory Council meeting on November 12, 2010. This advisory council was convened by BESE to reread the written public comments. The council consisted of twelve people, including two members of the Louisiana legislature, Senator Ben Nevers and Representative Frank Hoffmann. Nevers and Hoffmann were responsible for the passage of the LSEA through their respective chambers in 2008. After several hours of testimony, the majority of which supported the biology textbooks, the advisory council voted 8–4 in favor of the textbooks.

From this meeting, I was mostly interested in the documents that were distributed by Lennie Ditoro, a supporter of the LFF, during her testimony. Lennie Ditoro worked with the LFF during the previous science textbook adoption in 2002 and has introduced herself as a representative of the LFF Education Resource Council on at least one occasion. The document entitled “Louisiana Science Framework” concerned me the most. This document included bits and pieces from the real Louisiana content standards, several of which were taken out of context or entirely misquoted in order to serve a specific agenda: in this case, redefining science. For example, one quote on the handout said that “science should be ‘presented as a … continuing process for extending understanding of the ultimate, unalterable truth’.” I found this quote troubling, considering that I knew this is not the purpose of science. This quote leaves out some key words from the real Louisiana document, one of which changes the entire meaning. The actual passage (with the omitted words emphasized) is “science is presented as a human enterprise and a continuing process for extending understanding, instead of the ultimate, unalterable truth.”

A second example is how opponents of the textbooks cited the benchmark “recognizing and analyzing alternative explanations and models” as a reason to have “balance” and “critical thinking” when it comes to teaching evolution. Opponents claim that the textbooks fail to satisfy this particular Louisiana benchmark. While we can all agree that it is important for students to be able to recognize and analyze alternative explanations and models, this does not mean analyzing any non-scientific alternatives, that is, supernatural causes. The alternative explanations and models can only address natural phenomena, be testable, and be based on evidence.

As a science educator, I knew that these particular quotes were either taken out of context or just plainly misrepresented science. However, the students, the general public, and decision-makers most likely would not recognize these errors and accept this information without thinking twice. This has already happened in Louisiana with the passage of the Ouachita Parish Science Curriculum Policy in 2006. This science curriculum policy includes all of the above quotes and has already had an impact on how evolution is taught in that parish. I can only imagine the type of science instruction students in Ouachita Parish are experiencing. I found the use of these quotes in the meeting and in the science curriculum policy very troubling because these individuals using them deliberately misrepresented the entire purpose of science.
Public Meetings: BESE

On December 7, the Student/School Performance and Support Committee (SSPS) of BESE met to discuss the recommendations from the textbook adoptions committee and the Textbook/Media/Library Advisory Council. As with all previous meetings, this was open to the public. Several supporters of the LFF testified as did several supporters of the biology textbooks. There were over three hours of testimony, some more heated than others.

Many opponents of the textbooks addressed concerns with science, used the key phrases “strengths and weaknesses” and “critical thinking,” and claimed that the textbooks were outdated. The comments on the textbooks concerned me because of the fact that so many teachers rely on their textbooks in some way to teach (Chiappetta and others 2006; Weiss and others 2001; Yager 1983). If teachers start to think that the information in their textbooks is outdated, they could potentially feel less confident about what they are teaching. This creates the perfect opportunity for organizations like the Discovery Institute and the LFF to encourage teachers to use supplemental materials like the textbook addenda found at creationist websites (such as http://TextAddOns.com). Not only would these sources create confusion when it comes to learning about evolution, they could also create confusion when it comes to understanding science in general.

As with the first public meeting, the testimony that really concerned me was Lennie Ditoro’s testimony. Although she has incorrectly quoted the Louisiana standards in the past, she used this occasion to argue against the current definition of science. She tossed out words like “materialism” and “naturalism” throughout her testimony. She claimed that the definition of science is too narrow because it only focuses on natural explanations. In other words, the definition of science does not consider any supernatural explanations. She called this “the root of the problem.”

Finally, some of the comments by the chairman of this committee, Dale Bayard, were troubling. For instance, during Barbara Forrest’s testimony, Bayard interrupted her to say, “But it’s a theory. It’s a theory. Parts of evolution are factual, but a lot of evolutionary concepts are theory that we teach our children [and] are not factual.” After the meeting, several of us were outside of the room discussing the outcome (the board voted 6–1 to adopt the textbooks) when Bayard approached us. He said that it should be a panel of scientists answering these questions and not people like us. Before I could answer, an evolutionary biologist with us said that “science already does this, it’s called peer review.” The scariest part of this is that Dale Bayard is an elected official and makes decisions that directly impact the future of Louisiana students. If he does not understand some of the basic aspects of science, then how can we expect him to respond intelligently when he is presented with information that clearly misrepresents science?

Repeal Effort

This past spring, Zack Kopplin, a recent graduate (in spring 2011) from Baton Rouge Magnet High School, led a repeal effort with the help of State Senator Karen Peterson. This effort had the support of multiple science and education organizations as well as forty-three Nobel Laureates. Unfortunately this effort failed in the Senate Education Committee. While an explanation of the repeal effort is not appropriate for this article (visit http://www.repealcreationism.com/ and http://lasciencecoalition.org for more information), it is
important to understand that during the testimony in front of the Senate Education Committee, several comments were made that indicated this continued attack on science is not going to end anytime soon.

Of the several opponents to the repeal effort testifying, three stood out the most. Darrell White handed out a copy of the Ouachita Parish Science Curriculum Policy to support his argument that teachers need to teach “both sides.” He also said that the LSEA would allow teachers to teach other ideas like irreducible complexity, a key tenet of “intelligent design.” In both instances, Darrell White is clearly misrepresenting science. First, he promotes the notion that science is a democracy, that scientists vote on what idea they like best. Second, he indirectly referred to the teaching of “intelligent design” in the science classroom. Unfortunately, the members of the Senate Education committee seem not to understand evolution and science in general because if they did, they presumably would have questioned him on this comment.

Lennie Ditoro also testified against the repeal effort. As before, she claimed that the definition of science is inadequate because it focuses solely on natural explanations. She also made this point in the hall after repeal failed. Although I knew that a discussion would be pointless, I constantly reminded her that science can only deal with the natural world.

Finally, Suzanne Passman, a former science teacher, claimed that we confused the definition of science. She argued that there are two areas of science, observational science and origin science or historical science. She claimed that origin science or historical science “is not a true science” like observational science because it is not observable, not repeatable, and not testable. This was her definition of science. There are two concerns with her argument. First, she clearly does not understand that scientists use both observations and inferences to construct scientific knowledge, a key part of the nature of science (Lederman 2007). Second, she conveniently left out natural explanations as an important part of the definition of science. Like other opponents of science, she is trying to redefine science to allow a place for supernatural explanations.

**Conclusion**

I couldn’t have agreed more with Lennie Ditoro’s comment at the BESE meeting on December 7, when she argued that “the root of the problem” is the definition of science. She, and others, have argued that only focusing on natural phenomena is inappropriate. The real “root of the problem” that we are facing in Louisiana is that a select group, supported by the religious right, is trying to redefine science to include supernatural explanations. This is not just a Louisiana problem. In 2005, a small group of individuals supported by the Discovery Institute convinced the Kansas State Board of Education to redefine science (Overbye 2005). The board removed the phrase “natural explanations” and instead added the phrase “adequate explanations.” The only reason for this change was to allow teachers to tell students that supernatural explanations are acceptable in science. Thankfully, in 2007, a new Kansas board fixed this mistake and restored the original definition of science found in the initial state standards (Hanna 2007).

However, redefining science is what this all comes down to. The danger here is that if science begins to consider supernatural explanations, then potentially scientific advances would stop. As Miller (2008:197–198) argued, allowing science to consider supernatural
explanations would mean that “science will cease to be an empirical search for the truth of the natural world. ... It will cease to explore, because it already knows the answers. And humankind will be the poorer for it.” Additionally, changing the definition of science would affect generations to come. People would not be able to make informed decisions on important topics simply because they do not have a true understanding of science and its limitations.

Finally, a glimmer of hope emerged here in Louisiana during this last legislative session. A small group of state senators successfully stalled a bill proposed by Representative Hoffmann that would have drastically changed the textbook adoption process. Although Hoffmann argued that this bill was not motivated by the recent biology textbook fiasco, it was clear that he wanted to make it possible for local school systems to incorporate supplemental materials, that is creationist materials, into the science classroom. Hopefully this defeat is a sign that people are finally starting to wake up and protect science education in Louisiana.

References


About the Author

Ian C Binns is Assistant Professor of Science Education and Elementary Education at the University of North Carolina at Charlotte. While Assistant Professor of Science Education at Louisiana State University, Binns was instrumental in the successful effort to adopt the biology textbooks as well as the successful defeat of the bill that would have changed the textbook adoption process in Louisiana. He also represented the Louisiana Coalition for Science for the repeal effort. His research interests include the nature of science, scientific inquiry, and the public’s understandings of science.
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