Evolution, Creationism, and the Battle to Control America’s Classrooms

by Michael Berkman and Eric Plutzer
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reviewed by George F Bishop

Who should decide what students are taught about the theory of evolution and its so-called alternatives in American public schools? This is the normative political question that sets the foundation for the two big research questions that Berkman and Plutzer address in this innovative investigation: (1) How is education policy made in each of the fifty states? and (2) How is policy actually implemented in each of the thousands of individual classrooms? Anyone who wants to know or ought to know the answers—especially legislators, members of local school boards, public administrators, school superintendents, principals, and biology teachers—should read what is easily the most comprehensive and definitive study to date of what goes on behind those closed classroom doors. Yes, there have been other studies of what is being taught about evolution in public school science classrooms, but none of them was conducted at a national level. Berkman's and Plutzer's NSF-funded inquiry is the first national survey of its kind, based on a scientifically representative sample of over 900 public high school biology teachers in the spring of 2007. So their results can be generalized, nationwide, with a high degree of statistical confidence. How often do we get to say that about the views and behavior of American biology teachers? Virtually never.

So what’s in it for the reader? What follows is intended to provide a little flavor of the chapters in the book.

Chapter 1 takes on the basic normative question: Who should decide what children are taught? Our democratic political culture, as Berkman and Plutzer put it, tells us “… the people should decide what shall be taught in publicly funded schools” (p 8, emphasis in original). That's what William Jennings Bryan argued in the Scopes Trial, and that principle of majority rule is still very much with us today. But as Berkman and Plutzer remind the reader, there are sound alternatives to this simplistic majority rule principle. To begin with, the First Amendment of the US Constitution safeguards our civil liberties against arbitrary majoritarianism and prohibits the making of any law “respecting the establishment of religion.” Another alternative to simple-minded popular sovereignty is to recognize, as the authors note, that school teachers are professionals who should have the academic freedom to use their best judgment about what needs to be taught regarding the theory of evolution. With this perspective as background, the authors discuss the creationism/evolution culture wars today and how they have evolved over time, tracing them from the days of the Scopes trial to Epperson v Arkansas to Edwards v Aguillard to Kitzmiller v Dover. They tell the reader, too, how the “standards and assessment movement” in American education has now opened the door for advocates of “intelligent design” (ID) and other
forms of creationism to smuggle their wares into the classroom under the guise of “equal
time” and the like. But the courts, as Berkman and Plutzer point out, have greatly limited
such unconstitutional maneuvers, so much so that they contend “there is not a single state
in which the official state policy, as reflected in state science standards, fully reflects the
wishes of the majority of citizens” (p 27). This leads them to conclude that there is a sig-
nificant gap between public opinion (what the people want) and public policy (what the
people get). There, I part company with them, but more on that in a bit.

In chapter 2, the authors’ comprehensive analysis of public opinion polls on teaching evo-
lution and creationism lead them to conclude that the public wants to “teach both”:

… there can be no doubt that the large majority of Americans want creationism taught
in the public schools. A large plurality of this group wants creationism taught as sci-
ence and in science classes, whereas others apparently would be satisfied to see some
ideas of creationism validated by their discussion as a religious perspective or belief.
But current legal decisions rule out all such possibilities. (p 62, emphasis in original)

So, they contend, there is a gross gap between public opinion and the public policies that
are in place in all fifty of the United States! Or so it seems.

Elsewhere, my colleagues and I (Bishop and others forthcoming) have analyzed the same
public opinion data and reached rather different conclusions about what these polls actu-
ally show, to wit: (1) that the evidence clearly indicates the American public is profoundly
ignorant about and unfamiliar with the so-called alternatives to the theory of evolution,
creationism and intelligent design, and that their acquaintance with evolution is crude and
superficial at best, (2) that their responses to questions about teaching evolution and “alter-
natives” to it reflect not so much informed, substantive policy preferences as a tendency to
answer a complex question about largely unfamiliar abstract concepts in what superficially
seems like a fair way, and (3) that many respondents who oppose the teaching of evolu-
tion in public schools and say they support teaching the alternatives to it, or the evidence
against it, are just giving gut-level, emotional reactions to a word or idea—evolution—
which has become associated with being “descended from apes” and with atheism. So, at
best, the jury is out on what the public really wants. Furthermore, I would argue that treat-
ing the results of public opinion polls on the teaching of evolution and its “alternatives” at
face value may unwittingly give aid and comfort to those who continue to pose challenges
to the theory of evolution, by telling them that public opinion is on their side.

The third chapter deepens Berkman and Plutzer’s analysis of public opinion by showing
how opposition to the theory of human evolution and its teaching in public schools var-
ies significantly across various religious, educational, and geographic subgroups. It may
come as no surprise to learn that support for creationism is concentrated not only among
doctrinally conservative Protestant traditions, but also among fundamentalist black Protes-
tants, among the less well-educated, in the South, and in less urbanized areas. But at the
same time, the authors find that opposition to evolution has only a weak relationship with
measures of scientific literacy or cognitive ability. So anti-evolutionists appear, as they say,
to “choose to ignore scientific arguments demonstrating evolution, or express skepticism
… as a hedge between what they have been taught in school and seen in museums on
the one hand, and what they may have heard in church, on the other” (p 78, emphasis in
original). More importantly, the authors are able to statistically aggregate multiple public opinion surveys and US Census data—for all fifty states—and demonstrate that just two key variables—the percentage of the state's population holding master's or doctoral degrees and the percentage affiliated with doctrinally conservative Protestant churches—are highly predictive of support for, or opposition to, the teaching of evolution.

In chapter 4, the authors take a close look at science standards throughout the fifty states, showing not only that there is considerable variation in such standards, but more importantly that the rigor and quality of state science standards, in general, can be explained by the administrative capacity of the state's bureaucracy responsible for developing science standards, and a state's support for public education in general. Though the climate of public opinion on evolution in a given state does not appear to have any notable influence on standards for science curricula in general, it turns out to be the most significant predictor of standards for the content of the evolution curriculum in particular. Thus, they argue, public policy is indeed responsive to public opinion, despite the wishes of scientists and organizations such as NCSE who try to keep “the science curriculum buffered from politics and popular control.”

Chapter 5 takes the reader behind those closed classroom doors to find out what teachers are actually doing. Here we learn that “only 12%—roughly one in eight—public high school teachers are teaching evolution in a manner totally consistent with the recommendations of the most prominent national scientific organizations” (p 127) such as the National Academy of Sciences. Shockingly, perhaps, their national survey also shows that anywhere from one out of seven (14%) to one out of five (21%) biology teachers endorse creationism or “intelligent design” as “valid scientific alternatives” to evolution (p 138, emphasis in original). Though such teachers may not explicitly advocate these “alternatives” in the classroom, equating them with science—as Berkman and Plutzer acutely remind us—undermines “the legitimacy of science” (p 140).

Chapter 6 is where the rubber meets the road, where state standards meet the “street-level bureaucrats” on the frontline: the teachers who “ultimately decide the fate of national and state science standards” (Spillane and Callahan 2000:401–402, cited by Berkman and Plutzer, p 149). The news is not so good, in fact rather dismal. The authors’ analysis of the hours teachers actually devote to evolution, including human evolution, indicates that state standards have a minimal impact on what teachers actually do. So much for what the National Academy of Sciences might like to see happening. The authors spend the rest of the chapter trying to explain why state content standards on evolution have so little influence on what teachers actually do. Hint: It’s not about the money we pay teachers.

In chapter 7, we find out—not surprisingly, perhaps—that a teacher’s personal beliefs about human origins makes a significant difference in how many hours they devote to teaching evolution, their scientific emphasis, and whether they bring creationism into the curriculum. Young-earth believers, for example, behave just as one would predict. On the upside, we also learn that the stronger a teacher’s education in biological science, the more likely he or she is to spend more hours on teaching it and in a way consistent with national scientific standards. Particularly significant is whether he or she took a college-level course emphasizing evolution. So the quality of a teacher’s science education matters a lot, regardless of his or her personal beliefs about human origins.
Chapter 8 tells us how it all plays out in the communities in which teachers get hired and pressured in varying degrees by the sentiments of the local political culture. As expected, self-selection plays an important role: communities with a traditionalist religious bent tend to hire new teachers with less formal education in biology and less exposure to the theory of evolution, and vice versa in more cosmopolitan places. Response to community pressures, as well, plays a role. So teachers end up teaching pretty much what the local community wants them to teach about evolution and its “alternatives.”

The final chapter brings it all together in a wide-ranging discussion of the continuities of the creationism/evolution “culture wars” over the past ninety years or so, the enduring question of “Who decides?”, and the future of this continuing political controversy.

Natural scientists such as EO Wilson (2006, afterword) often react with disbelief and dismay when they read polls about how many Americans do not believe in human evolution and resist its teaching in public schools. They’re not sure what (if anything) can be done about it in our exceptionally religious-minded society. But it may take highly capable political scientists, such as Berkman and Plutzer, to pave the way to effective reform by telling us what goes on behind those classroom doors, and why. Required reading, I’d say, for everyone who truly wants to make a difference in the “Battle for America’s Classrooms.”

REFERENCES

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