

The evolution battles in high-school science classes: who is teaching what?

Kristi L Bowman

How frequently and in what manner are evolution, creationism, and intelligent design taught in public high schools? Here, I analyze the answer to this question, as given by nearly 600 students from major public universities nationwide in a survey conducted during the spring of 2006. Although almost all recent public high-school graduate respondents reported receiving evolution instruction, only about three-quarters perceived that evolution was taught as a “credible scientific theory”. Creationism and intelligent design were reportedly presented almost one-third and one-fifth of the time, respectively, though respondents recalled that both concepts were presented as lacking scientific credibility much more often than not. The survey results are presented in composite form and also disaggregated with respect to the strength of evolution-related state standards, red state–blue state divisions, and the regional location of states within the country.

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The teaching of evolution in public elementary and secondary schools in the US has been highly controversial for the better part of a century, and the controversy has not waned. In October 2004, the Dover, Pennsylvania, school district adopted the nation’s first policy promoting intelligent design in public schools (*Kitzmiller v Dover Area School District* 2005). From 2005 through 2006, nearly 30 bills encouraging creationism or intelligent-design instruction were proposed in state legislatures (NCSE 2005, 2006). In November 2005, the Kansas State Board of Education redefined “science” to include, by implication, supernatural explanations (Overbye 2005), and in 2006, some state board of education elections in Kansas and Ohio were strongly focused on science education and were characterized by virulent rhetoric as well as large campaign coffers (Bischoff 2006; KGEC 2004, 2006; Ohio Secretary of State 2006; Stephens 2006). Finally, anecdotes about public high-school science teachers skirting the theory of evolution or offering up creationism or intelligent design as valid alternatives have become increasingly abundant (eg Freeman 2001; Cavanaugh 2005; Dean 2005; Monastersky 2006).

Opinion polls constantly gauge the public’s perspectives on the question of what should be taught in high-school biology classes (eg Bergman 1999). However, limited data exist to show what is actually taught – and most of what we know comes from teachers’ self-reports (eg Moore 2005; Trani 2004). Due to numerous practical constraints, researchers rarely focus on students’ perceptions of the evolution, creationism, and intelligent-design instruction in their high-school biology classes (Figure 1). This study builds on the work of Moore *et al.* (2006), who surveyed students in two high schools and

one university, and begins to fill the existing knowledge gap by surveying students across the country.

Methods

The sample

This study targeted students at eight major public universities in eight states across the country. The survey was designed to test for correlations between high-school science instruction about evolution, creationism, and intelligent design and each of three variables: (1) the primary “legal” factor affecting evolution instruction, state educational standards (Moore 2002; Skoog and Bilica 2002), (2) a recently popular demarcation of cultural difference, the “red state–blue state” divide of the past two presidential elections, and (3) a more general indication of cultural difference, geographic region.

The eight states were selected so that these three factors would be balanced to the greatest extent possible (Table 1). States’ evolution-related educational standards were classified as “strong” or “weak”, based on a 2005 report prepared by the Fordham Institute (Gross 2005). All standards had been in place since 2001, the time when students graduating in 2004 and 2005 would have taken a biology class (Gross 2005). Once the eight states were selected, one public university in each state was chosen to maximize the utility of the sample (Table 1) by balancing three factors: high in-state enrollment, low non-traditional student enrollment, and a student body not disproportionately originating from one area of the state.

In an attempt to access a more representative range of student perspectives, faculty and graduate students teaching one introductory biology class and one introductory psychology or introductory sociology class at each university were first contacted by email and telephone and asked to distribute the survey solicitation message to students enrolled in their introductory course. Participating

Michigan State University College of Law, East Lansing, MI 48824
(kristi.bowman@law.msu.edu)



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Figure 1. Student perceptions of the teaching of evolution, creationism, and intelligent design in high-school biology classes have rarely been addressed.

faculty and graduate students then distributed the solicitation via e-mail or posted it on the class webpage. The solicitation asked students to participate in a survey “about [their] high school science education”. (At one school, the survey was only distributed to biology students; at another school, the number of biology students participating was so low that the survey was also distributed to an introductory environmental science class.) Sixty-three percent of respondents received the survey from their biology professor, although only half identified themselves as “hard-science” majors.

The solicitation message informed students they would be entered into a drawing to win an iPod or one of four iTunes gift cards upon completion of the survey. It also contained a hyperlink to a secure website through which respondents accessed the online survey. Overall, 28% ($n = 1053$) of solicited students completed some portion of the survey. This rate varied from school to school. Of the 972 respondents who completed all questions with which they were presented, 573 attended public high school in one of the eight targeted states for all 4 years of their secondary education and graduated from high school in 2004 or 2005, making them “recent public high-school graduates”. The responses of the recent public high-school graduates ($n = 573$) presented in this article varied little in comparison to the group of all respondents who completed the survey ($n = 972$). Fewer than 1% of all respondents were home schooled and about 10% attended private high schools. These percentages reflect national enrollment patterns.

The sample group was demographically representative of the 18–24-year-old age group within about 10–15% for nearly all factors considered, with two major exceptions. Although all respondents were enrolled in college, slightly fewer than 30% of US adults in the 25–29 age group have received a college degree (NCES 2005). Also, a recent Gallup Poll showed US adults to be fairly evenly split between subscribing to the evolutionary explanation (46%) and the creationism explanation (49%) for human origins, which is consistent with the approximately 45%–45% split documented by Gallup for more than 25 years (Bowman 2006; Gallup 2006). Comparatively, when asked about their opinion of the origin and present diversity of plants and animals, survey respondents overrepresented the evolutionary perspective (61%), underrepresented that of creationism (20%), and also included those who subscribe to intelligent design (5%; the Gallup Poll questions, consistent for the past 25 years, do not include mention of intelligent design).

Because respondents were drawn from a convenience sample as opposed to a random sample, no margin of error can be calculated. Responses are not weighted due to the difficulty of accounting for California (during the 2004–2005 school year, California students comprised 60% of all public high-school students in the eight selected states). Readers are cautioned against extrapolating these data nationally. Due to the voluntary nature of the survey, non-response bias and self-selection bias may influence the results. The lapse in time between instruction about these issues, often at the end of high-school sophomore year, and the time of the survey, during college, also makes these respondents vulnerable to recall error.

The survey

The survey contained 58 questions (see WebPanel 1). Six of the questions asked about the frequency and manner of evolution, creationism, and intelligent-design instruction in respondents’ high-school biology classes; these questions are the focus of this article. When asked to recall past events, respondents were always provided with the option, “don’t remember”. Before asking students about a particular concept (evolution, creationism, and intelligent design, respectively) the survey provided definitions of the terms (Panel 1).

Twenty-one of the questions asked students to apply constitutional law standards to any evolution, creationism, or intelligent-design instruction they received. Thirty required questions asked students for extensive demographic and opinion information.

Due to the way the survey was organized, no respondent was presented with all 58 questions. For example, agreement with the statement “evolution was taught in my high-school biology class” would take the respondent to one series of questions regarding the nature of that instruction, while disagreement would take the respondent to a different series. Thus, any given respondent was presented with, and required to answer, between 31 and 48 questions.

The survey was piloted twice before general distribution. The survey instrument and protocol were approved by the Drake University Institutional Review Board. In the survey solicitation message, respondents were advised that they must be 18 years of age to participate. Because the survey was conducted late in the spring semester, it is likely that nearly all students who received the solicitation message were 18. Additionally, respondents were repeatedly assured that their responses would be confidential. The only personal information collected was an e-mail address, necessary to contact the prizewinners. This was the last question and respondents were informed that it was optional.

Results

Evolution

Evolution instruction in public high-school science classes is regulated by individual states through their own educational standards. Some states’ standards require a rigorous teaching of evolution (“strong standards” states). Other states’ standards skirt the “e” word and obviously related concepts, such as descent with modification, if these ideas are mentioned at all (“weak standards” states; Gross 2005). Thus, it might seem likely that evolution instruction would vary dramatically between strong standards and weak standards states. However, such a result was not indicated by this survey.

Overall, 92% of recent public high-school graduates reported that evolution was taught (26% “in depth”, 47% “somewhat”, and 18% “mentioned briefly”; slight numerical discrepancies result from rounding; Table 2). Of all recent public high-school graduates in strong standards states, 93% reported evolution instruction, but only 72% reported being taught that evolution is a credible scientific theory. By comparison, 89% of recent public high-school graduates in weak standards states reported evolution instruction, but only 60% reported being taught that

evolution is a credible scientific theory. However, when evolution is taught, it can also be presented as a concept *lacking* scientific credibility. Applying a logit regression analysis and holding constant states’ partisan political preference and geographic location, the estimated odds were that respondents in weak standards states are three times as likely as those in strong standards states to receive instruction that evolution is not scientifically credible ($P = 0.01$). The frequency-based statistics account for much of this disparity, with 4% of strong states’ respondents reporting that evolution was taught, but presented as a concept lacking scientific credibility, compared to 9% in weak states.

Table 1. Overview of states and universities represented in the study

State/University	State standards		Political climate		Regional location			
	Strong	Weak	Blue	Red	NE	S	MW	W
Arkansas (U of Ark, Fayetteville)		✓		✓			✓	
California (U of Cal, Davis)	✓		✓					✓
Indiana (Ball State U)	✓			✓				✓
Maine (U of Maine)		✓	✓			✓		
Massachusetts (U of Mass, Amherst)	✓		✓			✓		
Montana (U of Mont)		✓		✓				✓
Tennessee (U of Tenn, Knoxville)	✓			✓		✓		
Wisconsin (U of Wisc, LaCrosse)		✓	✓					✓
Total # of states	4	4	4	4	2	2	2	2

Panel 1. Definitions of terms used in the survey, provided to survey respondents

Evolution

“Evolution is the theory that all species evolved from less complicated organisms, and that individual species change over time. The theory is most closely associated with Charles Darwin.”

Creationism

“Creationism is the idea that God created all living and non-living things in more or less present form, and that humans and apes do not share a common ancestor.”

Intelligent design

“Intelligent design is the idea that the complexity of living things, and the low probability of evolution producing such complexity, can only be explained by the existence and involvement of an intelligent designer.”

Table 2. Reported frequency of instruction of evolution, creationism, and intelligent design in public high-school biology class

	"My high school biology class taught"		
	Evolution	Creationism	Intelligent design
Yes, taught	91.62%	30.37%	19.37%
Taught in depth	26.00%	0.07%	0.87%
Taught somewhat	47.29%	5.76%	6.11%
Mentioned briefly	18.32%	23.91%	12.39%
No, not taught	6.11%	62.13%	65.27%
Did not take HS biology	0.52%	0.17%	0.35%
Don't remember	1.75%	7.33%	15.01%

Notes: Data reflect the responses of 573 students who attended all 4 years of public high school in one of the eight designated states and graduated from high school in 2004 or 2005. Because a convenience sample was utilized, a margin of error cannot be calculated, nor can the results be extrapolated nationally.

The red state–blue state disaggregation closely tracks the respective weak standards–strong standards patterns, with red states overlapping substantially with weak standards states and blue states overlapping substantially with strong standards states. However, between red and blue states, the gap regarding evolution-as-scientifically-credible instruction widens to 17% (compared to 12% between weak and strong standards states).

More substantial variation is present when respondents are disaggregated by the geographic region of the state in which they attended high school. A high of 81% of recent public high-school graduate respondents in the West reported receiving instruction that evolution is a credible scientific theory, followed by 76% in the Northeast, and compared to a low of 56% of respondents in the Midwest and in the South. Holding constant the strength of state standards and states' political preferences, the estimated odds are that respondents in the Midwest are 75% less likely than those in the Northeast and respondents in the South are 84% less likely than those in the Northeast to receive credible evolution instruction (both $P = 0.01$). Furthermore, the odds that evolution would not be taught at all are 8.5 times higher in the Midwest than in the Northeast ($P = 0.01$), and 10.5 times higher in the South than in the Northeast ($P = 0.03$).

Creationism

In 1987, the US Supreme Court held that it is unconstitutional for public high schools to teach "creation science" in science class because doing so constitutes impermissible government support for religion and thus violates the First Amendment's Establishment Clause, the provision generally thought to require separation between church and state (*Edwards v Aguillard* 1987). This dictate does not apply to private schools, but does uniformly restrict all public high schools across the country. Thus, the data regarding creationism instruction reflect a rough rate of constitutional compliance or non-compliance.

In the science classes of 30% of respondents who recently graduated from public high schools, creationism was reportedly taught to some degree (1% "in depth", 6% "somewhat", 24% "mentioned briefly"; Table 2). Yet, only 6% of all recent public high-school graduates perceived instruction to convey that creationism was a credible scientific theory (Figure 2). To maintain consistent language among survey questions, evolution, creationism, and intelligent design were all referred to as "theories" in one set of questions (eg a respondent would register a level of agreement or disagreement with the statement that, "In my high-school biology class, creationism was presented as a credible scientific theory"; WebPanel 1). By contrast, the brief definition of evolution referred to it as a "theory" and the brief definitions of creationism and intelligent design referred to them as "ideas" (Panel 1).

When respondents' answers about creationism instruction were disaggregated by strong and weak standards states, and by red and blue states, the results were nearly identical for strong standards states and blue states (creationism instruction reported by 27–28%; creationism-as-scientifically-credible instruction reported by 5%), and weak standards states and red states (creationism instruction reported by 37%; creationism-as-scientifically-credible instruction reported by 6–7%). Again, a greater distinction was present when respondents were disaggregated by region; the South was the minimal outlier with regard to frequency of creationism instruction (38%, compared to 25%, 29%, and 31% for the Northeast, West, and Midwest, respectively), and regarding the presence of creationism-as-scientifically-credible instruction (8%, compared to 5% each for the Northeast, Midwest, and West).

None of the logit regression analyses regarding creationism or intelligent design instruction produced statistically significant results.

Intelligent design

The concept of intelligent design re-emerged during the late 1980s and early 1990s. During this time, the Seattle-based Discovery Institute began to function as the intelligent-design movement's strategic center. Because of the Supreme Court's 1987 decision banning creation science from public high-school science classrooms, anti-evolutionists who were focused on influencing public-school science education turned their attention to intelligent design. For example, early drafts of what is often considered an intelligent design primer, *Of pandas and people*, were apparently modified so that the many references to "creation science" were replaced with the term "intelli-

gent design” (*Kitzmiller v Dover Area School District* 2005).

About 15 years later, in December 2005, a federal district court struck down the Dover, Pennsylvania school district’s attempt to teach intelligent design, declaring the effort to be an unconstitutional establishment of religion (*Kitzmiller v Dover Area School District* 2005). Because the federal court issuing that decision was a trial court, its conclusion is binding only in a small portion of Pennsylvania. Accordingly, although the Supreme Court’s ban on teaching creationism applies nationwide, the federal district court’s ban on teaching intelligent design does not; thus, the constitutionality of teaching intelligent design can be freely relitigated across the country.

Of all recent public high-school graduates surveyed, 19% indicated that intelligent design was taught in their public high-school science classes (1% “in depth”, 6% “somewhat”, 12% “mentioned briefly”; Table 2). Seven percent of all recent public high-school graduates reported that they were taught about intelligent design as a credible scientific theory (Figure 2). The frequency of intelligent-design instruction varied less between and among subgroups than did evolution or creationism instruction: only 6% between strong and weak standards states, 1% between red and blue states, and 5% among states in different geographic regions (weak standards states, red states, and Southern states reported the highest rates of intelligent design instruction). When the presence of intelligent design-as-scientifically-credible instruction is examined, the South reports the most (11%), with the Northeast and Midwest reporting a smaller amount (6%), and the West even less (4%).

Additionally, when intelligent design is taught, it is perceived to be presented as a credible scientific theory at a rate higher (34%) than that for creationism (18%). This confirms one of the few narrow points of agreement between intelligent design’s proponents and critics: intelligent design is intended to look more “like science” and less “like religion” – and to these recent public high-school graduates, it does.

■ Conclusions

The law regarding evolution and creationism instruction is clear. State standards govern evolution instruction, but these data suggest that, regardless of what those standards say, evolution instruction varies least when disaggregated by the strength of the state standards, slightly more when measured against the red state–blue state division, and most when considering geographic location. In short, social factors appear to be more strongly correlated with

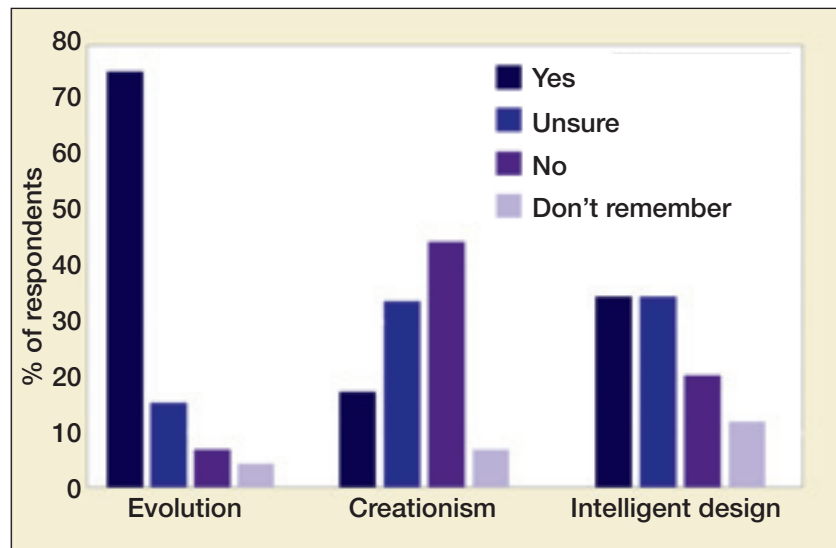


Figure 2. Response to the survey question, “If the concept was taught in a public high-school biology class, was it presented as a ‘credible scientific theory’?” Evolution ($n = 525$), creationism ($n = 174$), intelligent design ($n = 111$). Data reflect the responses of students who attended all 4 years of public high school in one of the eight designated states and graduated from high school in 2004 or 2005. Because a convenience sample was utilized, a margin of error cannot be calculated, nor can the results be extrapolated nationally.

disparities in the frequency and manner of evolution instruction than the sole legal factor.

Although evolution instruction may be required, creationism instruction is prohibited. However, creationism-as-scientifically-credible instruction reportedly still occurs, and is reportedly slightly more prevalent in weak standards states, red states, and the South. Because the few lawsuits that challenge any such instruction quickly gain national attention and such lawsuits have not occurred for many years, it appears that some communities may effectively sanction these violations when they occur, or deter disagreement about any contested practices.

In contrast, the law is not clear regarding intelligent design because the ruling of the one court to consider intelligent design is not binding nationwide. Interestingly, compared to evolution and creationism, the frequency and manner of intelligent-design instruction reportedly varies less between subgroups when disaggregated by the strength of states’ standards and by states’ political climate. Especially as the intelligent-design movement gains momentum, it is important that we continue to assess students’ perspectives on the frequency and manner of evolution, creationism, and intelligent-design instruction in public high-school science classes.

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WebPanel 1. Survey instrument

[The survey was administered online via a secure website. Respondents could access the survey instrument only if they received the survey solicitation, which contained a hyperlink to the survey. The online nature of the survey enabled two particularly beneficial features. First, respondents were required to answer one question before proceeding to the next, thus eliminating the problem of estimating missing responses. Second, “skip logic” was easily employed so that respondents who answered “yes” to a particular question would be taken to one series of subsequent questions, while those who answered “no” to the same question were taken to a different series of subsequent questions. Bracketed comments in this copy of the survey instrument explain where skip logic was used. None of the bracketed comments, including this one, appeared in the survey instrument when the survey was administered.]

1. I currently attend the following college/university:
- Ball State University
 - UCLA
 - University of Arkansas-Fayetteville
 - University of Maine
 - University of Massachusetts-Amherst
 - University of Montana
 - University of Tennessee-Knoxville
 - University of Wisconsin-LaCrosse
 - University of California-Davis
 - Other (fill in)
4. My high-school biology class taught the theory of evolution.
- Yes, evolution was taught in depth
 - Yes, evolution was taught somewhat
 - Yes, evolution was mentioned briefly
 - No, evolution was not taught
 - I did not take high school biology
 - Don't remember

[skip logic: if “yes” to 4, answer the following series]

2. The following academic category best describes my major:
- Business
 - Education
 - Fine Arts
 - Humanities
 - Information systems/mathematics
 - Journalism
 - Science – “hard”
 - Science – “soft”
 - Social science
 - Other (fill in)
3. I became aware of this survey:
- Through an e-mail message from my Biology professor/instructor
 - Through an e-mail message from my Psychology professor/instructor
 - A friend forwarded the e-mail
 - Through an e-mail message from my Sociology professor/instructor
 - Through an e-mail message from my Environmental Science professor/instructor
 - Other (fill in)
5. In my high-school biology class, evolution was presented as a credible scientific theory.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
 - Don't remember
6. In my opinion, the motivation for including evolution probably was to (check all that apply):
- Teach what most scientists believe
 - Teach what the teacher believed
 - Teach what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)
7. In my opinion, by teaching evolution, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember

Evolution is the theory that all species evolved from less complicated organisms, and that individual species change over time. The theory is most closely associated with Charles Darwin.

WebPanel 1. Survey instrument – Continued

8. In my opinion, by teaching evolution, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
9. When studying evolution, I felt pressured to:
- Agree with religious ideas
 - Respect or exercise tolerance for religious ideas
 - Set aside religious ideas
 - Ignore or reject religious ideas
 - I did not feel pressure in any of these ways
 - Don't remember
- [skip logic: if "no" to 4, answer the following series]
10. In my opinion, the motivation for excluding evolution probably was to (check all that apply):
- Teach only what most scientists believe
 - Teach only what the teacher believed
 - Teach only what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)
11. In my opinion, by excluding evolution, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember
12. In my opinion, by excluding evolution, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
13. Public schools should teach evolution in high-school biology class.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
14. Teaching evolution in high-school science class is unconstitutional.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
- Creationism is the idea that God created all living and non-living things in more or less present form, and that humans and apes do not share a common ancestor.
15. My high-school biology class taught creationism.
- Yes, creationism was taught in depth
 - Yes, creationism was taught somewhat
 - Yes, creationism was mentioned briefly
 - No, creationism was not taught
 - I did not take high school biology
 - Don't remember
- [skip logic: if "yes" to 15, answer the following series]
16. In my high-school biology class, creationism was presented as a credible scientific theory.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
 - Don't remember
17. In my opinion, the motivation for including creationism probably was to (check all that apply):
- Teach what most scientists believe
 - Teach what the teacher believed
 - Teach what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)

[skip logic ends]

WebPanel 1. Survey instrument – Continued

18. In my opinion, by teaching creationism, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember
19. In my opinion, by teaching creationism, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
20. When studying creationism, I felt pressured to:
- Agree with religious ideas
 - Respect or exercise tolerance for religious ideas
 - Set aside religious ideas
 - Ignore or reject religious ideas
 - I did not feel pressure in any of these ways
 - Don't remember
- [skip logic: if "no" to 15, answer the following series]
21. In my opinion, the motivation for excluding creationism probably was to (check all that apply):
- Teach only what most scientists believe
 - Teach only what the teacher believed
 - Teach only what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)
22. In my opinion, by excluding creationism, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember
23. In my opinion, by excluding creationism, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
- [skip logic ends]
24. Public schools should teach creationism in high-school biology class.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
25. Teaching creationism in high-school science class is unconstitutional.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
26. Teaching creationism brings religion into science class.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
- Intelligent design is the idea that the complexity of living things, and the low probability of evolution producing such complexity, can only be explained by the existence and involvement of an intelligent designer.
27. My high-school biology class taught intelligent design.
- Yes, intelligent design was taught in depth
 - Yes, intelligent design was taught somewhat
 - Yes, intelligent design was mentioned briefly
 - No, intelligent design was not taught
 - I did not take high school biology
 - Don't remember

[skip logic: if "yes" to 27, answer the following series]

WebPanel 1. Survey instrument – Continued

28. In my high-school biology class, intelligent design was presented as a credible scientific theory.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
 - Don't remember
29. In my opinion, the motivation for including intelligent design probably was to (check all that apply):
- Teach what most scientists believe
 - Teach what the teacher believed
 - Teach what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)
30. In my opinion, by teaching intelligent design, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember
31. In my opinion, by teaching intelligent design, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
32. When studying intelligent design, I felt pressured to:
- Agree with religious ideas
 - Respect or exercise tolerance for religious ideas
 - Set aside religious ideas
 - Ignore or reject religious ideas
 - I did not feel pressure in any of these ways
 - Don't remember
- [skip logic: if "no" to 27, answer the following series]
33. In my opinion, the motivation for excluding intelligent design probably was to (check all that apply):
- Teach only what most scientists believe
 - Teach only what the teacher believed
 - Teach only what community members wanted taught
 - Present a variety of viewpoints
 - Follow state educational standards
 - No opinion
 - Other (fill in)
34. In my opinion, by excluding intelligent design, the school appeared to:
- Support scientific ideas strongly
 - Support scientific ideas somewhat
 - Discourage scientific ideas somewhat
 - Discourage scientific ideas strongly
 - Neither support nor discourage scientific ideas
 - Don't remember
35. In my opinion, by excluding intelligent design, the school appeared to:
- Support religious ideas strongly
 - Support religious ideas somewhat
 - Discourage religious ideas strongly
 - Discourage religious ideas somewhat
 - Neither support nor discourage religious ideas
 - Don't remember
- [skip logic ends]
36. Public schools should teach intelligent design in high-school biology class.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
37. Teaching intelligent design brings religion into science class.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree

WebPanel 1. Survey instrument – Continued

38. Teaching intelligent design in high-school science class is unconstitutional.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
39. I graduated from high school in:
- 2005
 - 2004
 - 2003
 - 2002
 - Other (fill in)
40. I attended all four years of high school in the same state.
- Yes
 - No
- [skip logic: if “yes” to 40, answer the following questions]
41. I attend college in the same state where I attended high school.
- Yes
 - No
42. I attended a public high school all four years.
- Yes
 - No, I attended a private high school all four years
 - No, I attended both public and private schools during those four years
 - No, I was home-schooled
- [skip logic: if “private school” to 42, answer the one following question]
43. My high-school was:
- A Catholic school
 - A Protestant school
 - A school with another faith tradition
 - Not religiously affiliated
44. I lived in the following state when I took high-school biology:
- Alabama
 - Alaska
 - Arizona
 - Arkansas
 - California
 - Colorado
 - Connecticut
 - Delaware
 - Florida
- Georgia
 - Hawaii
 - Idaho
 - Illinois
 - Indiana
 - Iowa
 - Kansas
 - Kentucky
 - Louisiana
 - Maine
 - Maryland
 - Massachusetts
 - Michigan
 - Minnesota
 - Mississippi
 - Missouri
 - Montana
 - Nebraska
 - Nevada
 - New Hampshire
 - New Jersey
 - New Mexico
 - New York
 - North Carolina
 - North Dakota
 - Ohio
 - Oklahoma
 - Oregon
 - Pennsylvania
 - Rhode Island
 - South Carolina
 - South Dakota
 - Tennessee
 - Texas
 - Utah
 - Vermont
 - Virginia
 - Washington
 - West Virginia
 - Wisconsin
 - Wyoming
 - Don’t remember
45. I lived in the following county when I took high-school biology:
- Don’t remember
 - Other (fill in)

WebPanel 1. Survey instrument – Continued

46. The community in which my high school was located is best described as:
- Large metropolitan area (500 000+), urban (central city)
 - Large metropolitan area (500 000+), suburban (contiguous to a major urban area)
 - Mid-sized city (100 000–500 000)
 - Small city (25 000–100 000)
 - Small town (5000–25 000)
 - Rural (less than 5000)
 - Don't know
47. In my opinion, the community where I attended high school is:
- Strongly Republican
 - Moderately Republican
 - Evenly balanced/Independent
 - Moderately Democrat
 - Strongly Democrat
 - Don't know
48. The following category best describes my family when I was in high school:
- Upper class
 - Upper-middle class
 - Middle class
 - Working class
 - In poverty
 - Don't know
49. During high school, I attended religious services approximately:
- Weekly or more
 - 2–3 times per month
 - 1 time per month
 - Several times per year
 - Once per year
 - Never or almost never
 - Don't remember
50. Now, I attend religious services now approximately:
- Weekly or more
 - 2–3 times per month
 - 1 time per month
 - Several times per year
 - Once per year
 - Never or almost never
51. My religious affiliation, if any, is most closely described as:
- Christianity – Roman Catholic
 - Christianity – Mainline Protestant (eg Episcopal Church [USA], United Methodist Church, Presbyterian Church [USA])
 - Christianity - Evangelical Protestant (eg Assembly of God, Baptist, Church of Christ, Pentecostal)
 - Christian, but no organized religion
 - Judaism
 - Islam
 - No affiliation
 - Other (fill in)
52. My race/ethnicity is most closely described as:
- White
 - African-American
 - Latino
 - Asian-American or Pacific Islander
 - Native American
 - Other, or multiple groups
53. I am:
- Male
 - Female
54. The highest level of educational achievement attained by either of my parents is:
- Some high school
 - High-school degree
 - Some college
 - Two-year college degree
 - Four-year college degree
 - Some graduate school
 - Graduate-level degree (eg MBA, JD, PhD)
 - Don't know
55. The highest level of educational achievement I think I will attain is:
- High-school degree
 - Some college
 - Two-year college degree
 - Four-year college degree
 - Some graduate school
 - Graduate-level degree (eg MBA, JD, PhD)
 - Don't know

WebPanel 1. Survey instrument – Continued

56. The following statement most closely describes my personal beliefs about the origin and diversity of species:
- God created plants and animals pretty much “as is” at one time within the last 10 000 years or so.
 - God created different general types of plants and animals over millions of years.
 - Because various organs or organisms are so complex, they could not have resulted from natural selection, but must have been the product of an intelligent designer who created different general kinds of plants and animals over millions of years.
 - Plants and animals have evolved over millions of years from less complex organisms through the process of natural selection, as influenced or guided by God.
 - Plants and animals have evolved over millions of years from less complex organisms, without any divine involvement.
 - No opinion
 - Other (fill in)
57. In my opinion, humans and apes have a common ancestor.
- Strongly agree
 - Agree
 - Unsure
 - Disagree
 - Strongly disagree
58. *Thank you for completing the survey. Please list an e-mail address at which you would like to be contacted if you are the winner of the new video iPod or one of four iTunes gift cards (this information will be stored separately from your responses to all previous questions):*
- [fill in]