**Religion, Partisanship, and the Structure of Attitudes Toward Science**

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**Abstract**

We examine the structure of attitudes toward issues involving science which have been contested in recent public debate. These “contested science” issues include human evolution, stem-cell research, and climate change. We find that few respondents evince consistently skeptical attitudes toward science issues, and that religious variables are strong predictors of attitudes toward individual issues. Further, and contrary to analyses of elite discourse, partisan identification is not generally predictive of attitudes toward contested scientific issues.

During the last decades of the 20th century, and the first years of the 21st, there have emerged in US politics a number of political issues involving claims about scientific knowledge. That is, the science of evolution, climate change and biological research has been a source of contention in contemporary US Politics. Since these issues involve a number of public policy areas, including school curricula, reproductive freedom, support for scientific research, and environmental regulation, these policies, as well as the scientific evidence and reasoning underlying policy alternatives, have recently been contested in US politics. Science and technology are increasingly subject to political pressures seeking to influence pedagogy, regulate technology, and finance expensive new developments in science and medicine—as recent controversies over school curricula, stem cell research, and global warming (Bybee, 2008; Lerner, 2000; Reichhardt, Cyranoski, and Schiermeier, 2004; Skoog, 2005; Sherkat, 2011).

Corresponding to this level of political activity, the question of public attitudes toward science has attracted a great deal of scholarly attention. Several studies have shown an increasing pattern of distrust of science in the United States (Mooney, 2005; Gauchat, 2012). Several of these have investigated the causes and effects of scientific literacy, and have generally shown that science knowledge is a strong predictor of adult scientific attitudes( Baurer, Petkova, and Boyadjieva 2000, Hayes and Tariq 2000, Laugksch 2000; Miller 2004). Gauchat (2008) has shown that there are ‘mechanisms’ that underlie this relationship. Gauchat explores three attitudes toward the value of science; lack of science knowledge/scientific literacy, strong religious (Evangelical) faith, social embededness/ social context. These three explanatory factors contribute to the understanding of anti-science attitudes.

Recent studies of scientific literacy have used variations of the scientific literacy scale. Sherkat (2011) confirms that fundamental believers in the United States have lower levels of scientific literacy when compared to secular Americans. Religious variables have significant effects on such attitudes, and are stronger effects than those associated with gender, race and income. Roos (2012) expands the study of the bidimensional structure of scientific literacy scale (Bann and Schwerin, 2004; Miller, 1998, 2004) to a new assessment and measurement model using a new NSF science knowledge scale. The study advises researchers to create two separate scales (instead of a single summed scale) for a more accurate measurement of science knowledge; one for life science knowledge and one for physical sciences knowledge. For example, two items in the study about evolution and the big bang are more measures of a religious belief dimension termed, “Young Earth Worldview,” than are the measures of scientific knowledge.

Some studies have examined lack of science knowledge/scientific literacy and how it is affected by the levels of trust in science. Gauchat’s (2008) study on science and public trust show that conservatives have a low trust in science. Further, Gauchat’s (2012) study of public trust and science in the US, 1974 to 2010 show that group differences are stable in specific attitudes over time, except respondents who identify themselves as conservatives. At the beginning of the longitudinal study conservatives had the highest trust in science, but at the end of the study period conservative exhibited the lowest level of trust in science.

Moreover, there have been several recent studies exploring the contemporary relationship between religion and scientists. (Ellison and Musick 1995; Evans and Evans 2008; Ecklund 2010; Ecklund and Park,, 2009; Scheitle 201; Sherkat 2011; Evans 2012; Evans 2011; Baker 2012). Studies of political involvement by scientists such as Evans (2013) show evidence for increasing opposition by Biblical literalist conservative Protestants to the involvement of scientists in social debates about moral issues; and fundamentalists are less likely to have confidence in scientists than the non-religious. Freeman and Houston (2011) showed that respondents who believe that human evolution is “true” are more supportive of funding for scientific research than those who view evolution as “false” or “don’t know.” However, the attitudes are also an indication of the respondents’ demographic, religious and political characteristics.

 For the most part, this impressive literature has focused on attitudes toward science at a relatively high level of abstraction. Much of this literature carries the implicit assumption that such attitudes as confidence toward science, or scientific literacy, will be applied to specific areas of public policy. Given the varying nature of cognitive sophistication of the American public (Converse, 1964; Zaller, 1992), this assumption is not necessarily warranted. One cannot assume, for example, that respondents who have low levels of confidence in “the scientific community” will be skeptical of specific claims about global warming, or will be opponents of the teaching of evolution in public schools. Our purpose in this paper is to examine public attitudes toward three specific issues that might be characterized as “contested science:” evolution, climate change, and stem cell research. We hope to provide explanations of variations in these attitudes, and to determine whether skeptical attitudes about science issues exhibit a coherent structure. While previous research has emphasized general attitudes toward, and knowledge of, science, we focus our attention on more specific attitudes related to contemporary issues of public policy.

**Contested Science in US Politics**

Of course the evolution controversy is a hardy perennial of US politics, and is the oldest of the three issues considered here. The teaching of evolution in education has been contentious since the Scope trial of 1925. Since *Scopes*, the evolution debate has focused on the teaching of evolution, and its alternatives, in public schools. There has been recent development within US school boards and at the state legislative level in which some states have tried to limit, change revised or modify how evolution is taught in public schools/ or state education programs, and recent anti-evolution activity has shown no sign of abating in the early years o the 21st century. In 2007, the Kansas State Board of Education removed any reference to Intelligent Design as a part of science in its curriculum (Kansas Board of Education, 2013). In the 2008 case*Association of Christian Schools International* v*. Roman Stearns,* a California US District Court judge ruled in favor of the University of California agreeing /upholding the university’s position that various religious books on U.S. History and science should not be used for college preparatory classes (University of California, 2013).In 2008, the Florida State Board of Education set curriculum standards to explicitly require the teaching of the “scientific theory of evolution, which was changed from only referencing evolution with the phrase, “change over time (PBS, 2013).’ In 2008 Intelligent Design adoptees and creationist in the state of Louisiana were able to get the “Louisiana Academic Freedom Act’ passed into law. The Bill is a series of anti-evolution bills that have been originated at state houses in the US since 2001 (Discovery, 2007). The bills assert that teachers, students, and college professors face intimidation and retaliation, and need protection when in discourse of criticism on the topics of evolution. Similar ‘Academic Freedom Act’ bills in the states of Maryland in 2006, and in Alabama, Oklahoma and New Mexico in 2009 lapsed or died at the end of legislative sessions (Discovery, 2013). In 2012 a bill was passed, and approved by Intelligent Design proponents in the state of Tennessee. Scientists and science educators are apprehensive that the law may limit or misrepresent students’ understanding of creationism, and lead to the denial of global warming in science. The Bill ‘protects’ teachers who examine the “scientific strengths and scientific weaknesses of existing scientific theories covered in the course being taught” such as evolution and climate change (Zabarenko, 2012). Many fundamentalists believe that education, especially the teaching of evolution is valueless or in contrast to inerrant belief in the Bible, or it is valueless if it is not taught in a religious content and orientation (Darnell and Sherkat, 1997).

In general, courts have not been sympathetic as state board of education departments*.* Courts have struck down measures intended to prohibit the teaching of evolution (*Epperson v. Arkansas* [1968]), to mandate the teaching of creationism as an alternative to evolutionary theory (*Edwards v. Aguillard* [1987]) and to require the teaching of “intelligent design” (*Kitzmiller v. Dover Area School District* [2005]). Nevertheless, the continued litigation and legislative activity concerning the teaching of evolution and its alternatives suggests that the issue of evolution/creationism remains salient for many Americans (Irons 2007). Further, the ongoing nature of the controversy has occasioned intense political conflict (Hitchens, 2009), and has had important effects on the delivery of science education at the middle school and secondary levels (Berkman and Plutzer, 2010; NPR, 2005, 2008).

Various movements and organizations have employed scientific terminology to promote “creation science” or, more recently, intelligent design (ID). Since 2001 organizations such as the Discovery Center for the Renewal of Science and Culture (Discovery 2013), has been able to use strategies to push public schools, science educators, scientists and policymakers to move away from teaching mainstream curriculum evolution and science, toward the teaching of creationism and intelligent design. Forrest (2004) examines and documents the origins of Discovery’s ID ideology; and the book describes the organization’s unscientific hypotheses, the main source of its funding from religious and conservative groups, and its ties with conservative state legislators (see also Forrest, 2007). The U.S. National Academy of Sciences has stated that "creationism, intelligent design, and other claims of supernatural intervention in the origin of life or of species are not science because they are not testable by the methods of science (Science, 1999).

At the level of public opinion, the evolution question remains contested. A series of Gallup polls in the United States, taken from 1982 through 2008 on “Evolution, Creationism, Intelligent Design” have found that a plurality of Americans (ranging from 43 to 47 per cent) have believed that “God created human beings in pretty much their present form at one time within the last 10,002 years or so.” Between 35 and 40 per cent endorsed the view that “Human beings have developed over millions of years from less advanced forms of life, but God guided the process.” Only a small minority, ranging from 9 to 14 per cent, agreed that “God had no part in the process.” (Newport, 2004, 2007; 2010c). Opposition to evolution has been shown to be related to evangelical denominational affiliation, biblical literalism, and lower levels of formal education (Bishop, 2007; Lockett, 2010). Skepticism about evolution occurs even among relatively irreligious, highly educated citizens. Although there is substantial opposition to evolution even among highly educated and irreligious people, the existing empirical literature suggests that religious memberships, beliefs, and practices are the primary sources of opposition to evolutionary theory. Further, Newport (2007) has shown that there are substantial partisan differences in acceptance of evolutionary theory, with Republicans being significantly more skeptical than Democrats or Independents.

The general issue of environmentalism has been a source of intermittent, yet recurring controversy in US politics. Concern with “conservation” dates back at least as far as the administration of Theodore Roosevelt, and perhaps culminated with the environmental movement of the late 1960s and early 1970s. This movement ushered in a series of regulatory politics, as well as the creation of the Environmental Protection Agency.

 Perhaps the most recent permutation in the enduring general issue of environmentalism is the question of climate change, or more colloquially, “global warming.” The hypothesis that the earth’s atmosphere is warming as the result of human activity, and that such temperature changes may have profound consequences for the earth’s habitability, has been extremely controversial. Further, this controversy as had both a partisan and religious. Most recently, President Obama’s (WhiteHouse.gov) February 2013 state of the union address urged the nation country to do more to “combat” climate change. By contrast, a number of Republican leaders have expressed substantial reservations about climate change, and some have charged supporters of the global warming hypothesis with duplicity (Dade, 2011). While skepticism about climate changes is by no means universal among GOP leaders, there do appear to be important partisan differences at the elite level. Indeed, the title of Christopher Mooney’s recent book (2005): *The Republican War on Science* documents a great deal of party-based controversy over this issue in the United States Congress.

At the level of the mass public, the issue of climate change has not received nearly the scholarly attention of the evolution issue, perhaps as a result of the relative novelty of the controversy. The proportion of Americans who believe that the effects of global warming rose to a peak in 2008 and then declined. A similar trend was found regarding the belief that global warming is a threat to their lifestyle within their lifetime (Newport, 2010a). This trend has continued into 2012, and the Gallup Surveys have shown large partisan differences (Saad, 2012). Reporting on the results of focus groups, Draper (2013) has shown that, to some extent, the Republican Party is considered “anti-science,” and this image is most often manifested in attitudes toward climate change. To some extent, then, the elite level activity documented by Mooney has been shown to reflect differences among ordinary citizens.

Finally, in recent years there has been much attention and tension between politics and science on the issue of embryonic stem cell research. Again, at the elite level, there have been clear ideological and partisan differences. In 2001 the policy of the George W. Bush administration limited funding of embryonic stem cell research, and promised to develop and implement "strict guidelines" on the research. In March 2009 a new executive order signed by President Barack Obama ended the nearly eight-year-old ban on federal funding for most stem cell research, saying it ushered in a new era of possibility (Whitehouse.gov, 2009).

In August 2010 a U.S. federal district judge ruled against President Obama’s 2009 executive order that expanded embryonic stem cell research, asserting that it violated a ban on federal money being used to destroy embryos (Harris, 2010). **.**

In a current Supreme Court case, *Association for Molecular Pathology* v*. Myriad Genetics, Inc*. (Supreme Court, 2013), petitioners argued that patenting those genes violated §101 the Patent Act because they were products of nature. They also argued that the patents limit scientific progress. §101 limits patents to “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” (Oyez.org, 2013). The differences in attitude between religion and science about stem-cell usage have been a key role in the contention between biological research and politics. For example, the Catholic Church questions the propriety of scientific endeavors of stem cell research (Sherkat, 2011).

Surveys of public opinion show that, although a majority of Americans accept the morality of stem cell research, there exists a substantial minority (about one in three) who do not. Such opponents of embryonic research are most likely to be highly religiously observant, self-identified conservatives, and Republican (Newport, 2010b).

In this study, we examine public attitudes toward three issues involving what might be termed “contested science:” evolution, stem-cell research, and climate change. For convenience, we characterize disbelief in evolution or climate change, or opposition to stem cell research, as “skeptical” attitudes toward the issue in question. We hypothesize that skeptical attitudes toward each of these issues will be related to doctrinally conservative religious affiliations and attitudes, Republican partisanship, and ideological conservatism.

**Data and Method**

Data for this study were taken from the 2006 General Social Survey. This version of the GSS contains a number of items related to scientific knowledge, and attitudes toward policy issues to which such knowledge is relevant.

 The main dependent variables are attitudes toward three “contested” scientific issues: Human evolution, stem research, and climate change (see Table 1 for Question wording and marginal distributions). The human evolution variable is a dichotomous item, asking whether the respondent believes that humans evolved from earlier species of animals. This item differs from questions on other surveys, in which respondents are offered alternatives endorsing special creation, theistic evolution, or evolution which does not involved divine intervention (Newport, 2004, 2007). Nevertheless, the distribution of evolution attitudes in the GSS are comparable to other surveys, with a slight majority rejecting human evolution.

 Similarly, the “stem cell research” item is not ideal, in that respondents are not asked about the morality of stem cell research, but whether or not such scientific activity should be funded by government. Nevertheless, despite the fact that the funding item is likely “harder” than a more direct measure (e.g. one could favor conducting stem cell research, but oppose using taxpayer dollars to support it), nearly three in four respondents favor government expenditures for this purpose.

 Finally, the “global warming” item is also limited. Respondents are not asked whether climate change is occurring, or whether human activity is causing any such change, but simply about the extent of agreement among scientists about “the existence and causes” of global warming. We regard this item as having a certain level of face validity, since the extent of consensus concerning climate change is a point of contention in recent and contemporary political discourse that is often raised by global warming skeptics (Mooney, 2005). Opponents of public policies designed to ameliorate or reverse climate change often suggest that scientists disagree among themselves about the existence, causes, and extent o global warming.

 In order to facilitate comparison, and to permit the construction of indices, each item was dichotomized. The evolution item is, of course, dichotomous, and the stem cell research question lends itself to a natural “agree/disagree) simplification. The recoding of the climate change item is more complex, since a plurality of respondents (37%) selected the intermediate response (3). These were coded as endorsing a “low agreement” response, but the coding decision on the global warming item is, to some extent, arbitrary.

**TABLE 1 ABOUT HERE**

 To assess the sources of attitudes toward each of these issues, relatively simple multivariate models (logistic regression) were estimated. The effects of three sets of independent variables were considered. First, a parsimonious set of demographic variables (age, gender, and education) was included.[[1]](#footnote-1) We also include a set of political variables. The models include dummy variables for Republican and Democratic identification, with independents constituting the comparison category.[[2]](#footnote-2) We use discrete dummy variables, rather than the standard seven point party identification scale, because we anticipate that the effects of partisanship may be asymmetrical. That is, Republicans may receive partisan cues related to issues of contested science, and Democrats may not (or vice versa). We also estimate the effects of seven point ideological self-placement scale, running from “extremely liberal” to “extremely conservative.”

Finally, the effects of three religious variables are considered: We include dummy variables for Roman Catholicism and membership in an evangelical denomination (Smith 1990). We also examine the effects of a question tapping respondent attitudes toward the authority of the Bible. These measures correspond to the dimensions of “believing” and “belonging” which are thought to have independent effects on political attitudes (see especially Green, 2010).

**Sources of Attitudes Toward Contested Science**

The sources of skeptical attitudes toward scientific issues are examined in Table 2. As Table 2 shows, all three demographic variables are significantly related to attitudes toward evolution. Respondents of lower education, older respondents, and women are all less likely to believe in human evolution than other respondents. Only lower levels of education are also related to skeptical attitudes toward global warming, while none of the included demographic variables are related to support for government funding of stem cell research.

**TABLE 2 ABOUT HERE**

Affiliation as a Roman Catholic is not significantly related to attitudes toward any of the three science issues considered here. As might be expected, both membership in an evangelical denomination and a literal view of the Bible’s authority are significantly and strongly related to attitudes toward human evolution. In view of the historic tension between doctrinally conservative Christianity and evolutionary science (Jelen and Lockett, 2010), such a result is not surprising. Evangelical denominational affiliation is marginally related to attitudes toward stem cell research and global warming (p < .10), and attitudes toward the Bible are significantly related toward stem cell research. This last result supports the findings of Roos (2012) who suggests that some attitudes toward issues involving science also contain an important religious component.

 Self-identification as a conservative is significantly related to attitudes toward evolution and stem cell research, and marginally significantly related to attitudes toward global warming (p <.10).[[3]](#footnote-3) What is most surprising is the virtual irrelevance of partisanship in predicting any of the three issue attitudes considered here. Identification as a Democrat is significantly related to approval of government funding of stem cell research, but no other coefficient relating partisanship to attitudes concerning scientific issues even approaches statistical significance. Given the importance of elite-level Republican activities on these issues (Mooney, 2005; Draper, 2013), the fact that Republican identifiers are not significantly more skeptical than independents on any of these questions is quite unexpected.

 Thus, attitudes toward evolution conform most closely to our expectations. Religion and demographic variables are strong and significant predictors of disbelief in human evolution. by contrast, the effects of all three sets of independent variables on attitudes toward stem cell research and climate change are weaker and less consistent.

**The Structure of Scientific Skepticism**

To this point, we have considered the distribution and sources of attitudes toward separate issues involving science. In this section, we examine the relationships among these three attitudes. Is there a general attitude of “scientific skepticism,” or are attitudes toward evolution, stem cell research, and climate change independent of one another?

**TABLE 3 ABOUT HERE**

 The bivariate relationships among these issue attitudes are displayed in Table 3. As the data presented in this table show, attitudes toward the three science issues are significant, and in the expected direction, but rather weak. The coefficient (gamma) between attitudes toward evolution and stem cell research is a relatively robust .491, but the bivariate coefficients involving the global warming item are about one-third as strong. For the GSS sample as a whole, then, it seems unlikely that there exists anything approaching a consistently and generally skeptical attitude toward issues of contested science.[[4]](#footnote-4)

 In Table 4, we identify those respondents who take consistently skeptical attitudes, as well as respondents who provide skeptical responses on various combinations of the three issues considered in this study. As these data show, only one respondent in ten evinces consistently skeptical attitudes, while respondents who take skeptical positions on any pair of these issues also constitute relatively small minorities of the GSS sample. Indeed, the frequency of consistently skeptical responses on any combination of these issues falls short of that which would be expected by mathematical chance alone. Thus, these results suggest that, at the level of the mass public, any notion that there exists a substantial population which is generally skeptical or critical of modern science is implausible indeed.

**TABLE 4 ABOUT HERE**

Is there anything distinctive about the minorities of respondents who respond in a consistently skeptical manner to any combination of these issues? This question is addressed in Table 5, which contains the results of multivariate models estimated to predict various combinations of these issues. The answer appears to be no. While some of the coefficients in Table 5 achieve statistical significance, they do not appreciably add to our understanding of the results presented in Table 2.

**TABLE 5 ABOUT HERE**

To illustrate, educational attainment is a significant predictor of attitudes toward only the combination of issue attitudes which excludes responses about stem-cell research. This is precisely what we would expect from an examination of Table 2, in which education significantly predicts attitudes toward evolution and climate change. Conversely Democratic identification is significantly related to indices which include stem cell research, which is the only issue related to partisan attitudes. Clearly, it is the stem cell item which drives this result. Evangelical affiliation is significantly related to those combinations of issue attitudes which exclude global warming (which is not significantly related to membership in an evangelical denomination), but the significance level rises above .05 when climate change is included. Again, this is precisely what one would expect if the relationship between denomination and general scientific skepticism were spurious. Only in the case of respondent views of the Bible is there any evidence of general scientific attitude consistency, but, even here, the relationship between respondent views of the Bible and any index of skepticism is considerably stronger when the global warming item is excluded.

 Thus, the evidence in Tables 3-5 suggests that there is little evidence of a generally skeptical attitude toward science among any segment of the mass public. Despite rumors of a partisan “war on science” at the level of elite discourse, mass publics who disbelieve in human evolution, oppose government funding for stem cell research, and do not believe that there exists a scientific consensus concerning the extent and causes of climate change appear to be issue specialists, who do not exhibit constraint or consistency among such skeptical attitudes.

**Discussion**

The most important findings of this study are negative. First, there is no evidence that there exists any constituency of science skeptics. The three items which comprise the dependent variables in this study do not exhibit a coherent structure, no is it possible to identify any subgroup of consistent science skeptics. Rather, each issue attitude under consideration here appears to attract skeptical issue specialists. This result is consistent with the findings of Lockett (2010), who found that the effects of confidence in the scientific community on attitudes toward evolution were not significant once religious attitudes had been controlled. The relationship between attitudes toward evolution and stem cell research is moderate and significant, which supports the results reported by Roos (2012), which suggest that some scientific attitudes exhibit substantial religious components.

 Secondly, and perhaps more surprisingly, party identification is virtually irrelevant to skeptical attitudes toward science issues. With the sole exception of the relationship between Democratic identification and support for stem-cell research, partisanship is not significantly related to any of the issues considered here. Given the nature of elite-level discourse on evolution and climate change, this is a rather unexpected finding.

 Third, as might be expected, religious variables, including evangelical denominational affiliation and high views of the authority of Scripture, are strongly and significantly related to attitudes toward evolution. The same variables are related, albeit somewhat less strongly, to attitudes toward stem-cell research, but are not significantly related to a belief that there exists a scientific consensus about climate change.

 Finally, it is of interest that variables which do not appear directly related to socializing agents are most consistently related to skeptical attitudes toward science issues. While party identification and evangelical denominational affiliation might suggest that respondents are exposed to elite communications, and that such people might find communications more or less credible, it is not clear why ideological self-identification or respondent views of the Bible’s authority should be as efficacious as we observe. The latter set of predictors seems more “private,” and less directly relevant to elite messages (see Zaller, 1992). This is a puzzle, which requires further investigation.

 In one sense, the general lack of coherence of our findings may not be surprising. With the exception of evolution, which is an old controversy in US politics, issues involving the truth claims of science seem likely to be “hard” issues (Carmines and Stimson, 1980), which involve relatively high levels of information and are correspondingly cognitively demanding. Such issues do not lend themselves to simple characterization or incorporation into more general belief systems or ideologies.

**Table 1:**

**Frequency Distribution of Measures of Science Attitudes**

*Evolution:*

Human beings, as we know them today, developed from earlier species of animals (Is that true ro false)?

True 49.6

False 50.4

 \_\_\_\_\_\_\_\_

 1570

*Stem Cell Research:*

Recently, there has been controversy over whether the government should provide any funds at all for scientific research that uses “stem cells” taken from human embryos. Would you say that government definitely should fund such research, probably should fund such research, probably should not fund such research, or definitely should not fund such research?

Should[[5]](#footnote-5) 74.3

Should not[[6]](#footnote-6) 25.7

 \_\_\_\_\_\_\_

 855

*Global Warming:*

On a scale of 1 to 5, where one means “near complete agreement” and 5 means “No agreement at all,” to what extent do environmental scientists agree among themselves about the existence and causes of global warming?

High agreement[[7]](#footnote-7) 45.9

Low agreement[[8]](#footnote-8) 54.1

 \_\_\_\_\_\_\_\_

 850

*Source:* Computed from General Social Surveys, 2006.

**Table 2:**

**Multivariate Models of Science Attitudes**

**(Logistic regression)**

*Evolution Stem Cell Global*

 *Research Warming*

Education -.092\*\* \* -.026 -.093\*\*

Age .019\*\* -.007 .000

Sex .362\*\* .079 .146

Republican .127 .255 .272

Democrat -.094 -.494\* -.138

Ideology .248\*\*\* .301\*\*\* .102@

Catholic -.192 -.138 -.068

Evangelical .976\*\*\* .351@ .319@

Bible view 1.085\*\*\* .494\*\*\* .088

Constant 1.098\* -.977 .504

Nagelkerke R2 .374 .165 .056

N 1488 810 803

@significant at ,10

\*significant at .05

\*\*significant at .01

\*\*\*significant at .001

*Source:* Computed from General Social Surveys, 2006.

**Table 3:**

**Bivariate relationships (gamma) among science items**

*Evolution Stem Cell Global Warming*

 *Research Agreement*

*Evolution* 1.0

*Stem Cell .*491 1.0

 *Research*

*Global Warming* .111 .172 1.0

 *Agreement*

*Source:* Computed from General Social Surveys, 2006.

**Table 4:**

**Frequency Distribution of Composite Measures of Science Attitudes**

 *All items Global Warming Stem Cell Evolution*

 *Excluded excluded excluded*

Consistent

 Skeptical [[9]](#footnote-9) 10.0 17.5 25.8 15.9

Other 90.0 82.5 74.2 84.1 \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

 652 724 720 818

*Source:* Computed from General Social Surveys, 2006.

**Table 5:**

**Multivariate Models of Composite Science Measures**

**(Logistic regression)**

*Consistent Global Warming Stem Cell Evolution*

 *Skeptical excluded excluded excluded*

Education -.033 .030 -.179\*\*\* -.090

Age . 001 .001 .008 .009

Sex .176 .049 .083 .367

Republican -.020 .216 .605@ .384

Democrat -1.199\*\* -.712\* -.371 -.668\*

Ideology .383\*\* .377\*\*\* -.133 -.256\*

Catholic -.833 -.533 .009 .317

Evangelical .588@ .513@ .839\*\* .496\*

Bible 1.023\* 1.042\*\*\* .566\*\*\* .396\*

Constant -1.955\* -1.263\*\*\* -3.376 -1.747

Nagelkerke R .259 .278 .256 .156

N 661 .689 683 777

@significant at .10

\*significant at .05

\*\*significant at .01

\*\*\*significant at .001

*Source:* Computed from General Social Surveys, 2006.

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1. The inclusion of race in the models reported here makes no measurable difference in the findings. [↑](#footnote-ref-1)
2. Independent leaners were coded as partisans. See Petrocik, (1974). [↑](#footnote-ref-2)
3. It should be noted that, due to the split half method used in the science module of the 2006 GSS, the Ns for the models related to stem cell research and global warming are just over half that used in the evolution model. Thus, we are inclined to report coefficients which approach, but do not meet conventional levels of statistical significance. [↑](#footnote-ref-3)
4. For the entire sample, the reliability (Cronbach’s alpha) for these three items is .280; for members of evangelical denominations only, alpha=.199. [↑](#footnote-ref-4)
5. Definitely should or probably should. [↑](#footnote-ref-5)
6. Definitely should not or probably should not [↑](#footnote-ref-6)
7. 1 or 2 [↑](#footnote-ref-7)
8. 3 - 5 [↑](#footnote-ref-8)
9. Disbelief in evolution, government should not fund stem cell research, low agreement among scientists on global warming. [↑](#footnote-ref-9)