Religious Communities, Science, Scientists, and Perceptions: A Comprehensive Survey

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Introduction

From Galileo to the Scopes Monkey Trial, science and religion have been pitted as opponents (Numbers 1992). Media attention generally focuses on the conflict that religious and scientific communities have over evolution (Bartlett 2005; Begley 1998; Behe 2005; Cuomo 2005), and controversial court cases over how to teach evolution in public schools have renewed public interest (Berkman and Pultzer 2010). The debate between science and religion, however, goes beyond evolution. Some scientists condemn religious leaders more generally for the perception that they facilitate scientific ignorance among the American public (Dawkins 2006; Editors 2005; Lakoff 2005; Scott 2000). Indeed, some vocal religious leaders preach skepticism of scientific theories. An older body of literature has probed these issues, emphasizing in particular the religious views of scientists (Leuba 1916; 1934; Vaughn, Smith, and Sjoberg 1966). A small body of recent research has focused on elite scientists and religious leaders (Brown 2003; Ecklund and Scheitle 2008; Ecklund, Park, and Veliz 2008; Ecklund 2010), as well as on how religious people view evolution or the opposition to teaching evolution in public schools (Binder 2002; Fuljames, Gibson, and Francis 1991; Grimm 2009; Miller, Scott, and Okamoto 2006; Plutzer and Berkman 2008). The current views of rank and file scientists and members of congregations on a variety of issues related to science and religion, however, remain largely opaque (Ellison and Musick 1995).[1] We do not know, for example, if it is religious identity or other factors (such as class, race, or educational background) that shapes attitudes towards science, or if it is a combination of such factors. Furthermore, available research only indirectly addresses how scientists perceive and understand religion compared with the broader religious public. The Religious Understandings of Science study, consisting of a survey of 10,241 members of the general population and 315 in-depth interviews with those adhering to diverse religious traditions, contributes extensively to this limited literature and provides unique data on the mutual perceptions that scientists and those from a range of religious traditions have about each other and their institutions.

In response to the assertion that certain religious communities—particularly Evangelical Protestants (EPs)—have the most reservations about science and scientific communities, this initial analysis uses original survey and interview data to discuss the religious practices and identities of general population scientists alongside religious people, with a special emphasis on Evangelical Protestant attitudes towards science. Next, we consider how these core groups view the science-religion relationship, and specifically their perceptions of conflict between religion and science. Finally, we examine how Evangelical Protestants and scientists conceptualize the nature, purpose and abilities of science, with particular attention to their approach to evolution.

Methods

The Religious Understandings of Science research initiative (Elaine Howard Ecklund, PI) is a mixed-methods study consisting of a nationally representative survey, in-depth interviews, and extensive observations of religious communities. We describe below in greater detail the methodology for both the survey and interview components.

Survey Data

The Religious Understandings of Science (RUS) survey is part of a cooperative research and outreach effort with the American Association for the Advancement of Science Dialogue on Science Ethics and Religion (DoSER) program (Jennifer Wiseman, Director). The data was collected by researchers at Rice University and will be provided to the AAAS DoSER program to facilitate innovative outreach to scientists and religious leaders. The survey was conducted at Rice University from December 27, 2013, through January 13, 2014, and utilized a research tool called KnowledgePanel®. The KnowledgePanel® was created by the survey firm GfK and is a probability-based online non-volunteer access panel, meaning that households in the panel are selected through a representative sampling process and not by their own self-selection into the panel. Panel members are recruited using a statistically valid sampling method with a published sampling frame of residential addresses that covers approximately 97% of U.S. households, reflecting the U.S. Census. When non-Internet households are recruited they are provided a netbook computer and free Internet service so they may also participate as online panel members. KnowledgePanel® consists of about 50,000 adult members (ages 18 and older) and includes persons living in cell phone only households. For the survey 16,746 panelists were asked to participate and 10,497 responded. Thus, the survey garnered a response rate of 62.7%, which is an extraordinarily high response for modern survey research.[2]

After invalid respondents were removed, the RUS survey produced 10,241 total respondents. Nine thousand seven hundred and ninety-eight (9,798) of these respondents represented a random sample of the general U.S. English and Spanish-speaking adult population. Three hundred and forty-one (341) of these respondents represented an intentional oversampling of panel members whose occupations were in one of several targeted sectors that the researchers identified as potentially including higher proportions of individuals that might be considered scientists. These occupational sectors were:

- Computer and Mathematics
- Architecture and Engineering
- Life, Physical, and Social Sciences
- Medical Doctor (such as physician, surgeon, dentist, veterinarian)
- Other Health Care Practitioner
- Health Technologist
- Health care support

For the purpose of comparison and analysis, the oversample was drawn to increase the number of respondents from these science-related occupational sectors. Because the individuals in this science oversample are likely not representative of the general population, sampling weights are applied in the analyses so that these cases do not adversely influence the accuracy of population estimates.

In the tables shown below we excluded respondents with missing data due to a refusal to answer one of the question(s) we are currently examining, so that all tables are based on the same sample of respondents, those who answered all questions analyzed for this paper. This exclusion process, technically called a listwise deletion of missing data, reduced the analytical sample for the tables to 9,138 total respondents. This sample size is significantly larger than most nationally representative surveys, which often range from 1,000 to 2,000 total respondents. An advantage of this sample size is an increased ability to examine smaller sub-populations. Of those total respondents, we identified 574 (4.9%) individuals as being scientists.

Definition of Scientist

Defining "scientist" is challenging, and any approach would have potential weaknesses. Our strategy, however, balances the competing problems of being too narrow or too broad. Our definition includes a three-pronged measure including occupational classification, self-report, and educational levels. Before the survey was conduced we identified seven occupational categories that we believed could contain a higher proportions of scientists.[3] These include the Computer and Mathematical category, the Architecture and Engineering category, the Life, Physical, and Social Sciences category, the Medical Doctor category, the Other Health Care Practitioner category, the Health Technologist category, and the Health Care Support category.[4] These seven were selected from twenty-eight categories that roughly mirror those used by the Bureau of Labor Statistics, the principal Federal agency responsible for measuring labor market activity, working conditions, and price changes in the economy. We asked a larger proportion of potential respondents in these occupational groups to take the survey (the proportion of respondents referred to as the "oversample"). As part of the survey, we asked respondents if they work in a science-related occupation. Our analysis found that some of the highest rates of self-identifying as having a science-related occupation were indeed in the occupational categories that we targeted for oversampling, providing confirmation of our strategy. For instance, 73% of those in the Architecture and Engineering category, 86% of those in the Life, Physical and Social Sciences category, 96% of those in the Medical Doctor category, 48% of those in the Computer and Mathematical category, 80% in the Other Health Care Practitioner category, and 73% of the Health Technologist category stated that their occupation was science-related. Because a low proportion of individuals in the Health Care Support category identified as having a science-related occupation, we exclude individuals in this category from our definition of scientist even though it was included in the oversampling process. However, our survey data revealed that 39% of those in the Teacher, College or University category (39%) identified as having a science-related occupation. As a result, we include this occupational category as part of the multi-pronged measure for identifying a scientist.

To be defined as a scientist in our analyses, the respondent also had to self-define her occupation as science-related. As noted above, we specifically asked respondents,

"Would you say that your current occupation is science-related?" If a respondent answered "no" to this question, then she was excluded from the scientist group, even if she indicated her occupation was in one of the aforementioned occupational categories.

Finally, we excluded respondents who did not have a bachelor's degree or higher educational qualification. This ensured that individuals categorized as scientists possess a credential signifying acquisition of technical skills and disciplinary knowledge necessary for performance of a given scientific occupational role (Collins 1971). Table 1 describes the occupational category distribution of the scientists in the population of those who took the survey. This definition of scientist accounts for occupational/professional status (institutionalization), subjective membership (self-identification), as well as exposure to scientific knowledge through advanced study (socialization), and results in a broad yet precise understanding for defining a scientist in the general United States population.

The multi-pronged measure is summarized below.

Operational Definition of "Scientist"

1. Employed in one of science-focused occupational fields shown in Table 1
2. Self-identified on the survey as having a science-related occupation
3. At least a bachelor's degree of education

Referring to Table 1, of those defined as a scientist about 30% are in the Computer and Mathematical category, approximately 24% are in the Other Health Care Practitioner category, 20% are in the Architecture and Engineering category, and College teachers and Health Technologists each represent about 5% of our scientists.

Table 1: Occupational Field Distribution of Respondents Defined as Scientists

	%	N
Total Sample	100.0[b]	9,138
Total Non-Scientists	95.1	8.564
Total Scientists (as percentage of all respondents)	4.9	574
Occupational Field Distribution of Scientists	100.0[b]	574
Computer and Mathematical	29.3	143
Architecture and Engineering	19.7	113
Life, Physical, and Social Sciences	10.7	72
Teacher, College or University	5.0	29
Medical Doctor	7.2	44
Other Health Care Practitioner	23.6	142
Health Technologist or Technician	4.5	31

a. N=9,138; Percentages weighted by weight2

b. May not add to 100% due to rounding

c. Definition of scientist for this report= a three part composite measure that includes: Bureau of Labor Statistic (BLS) occupational categorizations (ppcm0160), self-identification as a scientist (scioccup), and education level (ppeducat)

Table 2: Religion of Respondents

Religion	%	N
Evangelical Protestants[a]	22.9	2,149
Mainline Protestants	26.9	2,463
Catholics	23.8	2,194
Jews	1.9	215
Mormons	1.8	165
Muslims, Hindus, Buddhists, Sikhs, Jains	2.6	177
Atheists, Agnostics, No Religion	15.5	1,349
Something Else	4.7	426
Total[b]	100%	9,138

N=9,138; Percentages weighted by weight2

a. Defined as those stating that "evangelical" describes them "somewhat" or "very well"

b. May not add to 100% due to rounding

Table 2 demonstrates the diversity of religious traditions among respondents in our sample. Just less than 23% of our respondents are classified as evangelicals. Evangelical Protestant is defined here as non-Catholic Christians who say that the term "evangelical" represents their religious identity "very well" or "somewhat well."[5] We recognize that there is a range of opinions, none of which is flawless, about how to define the evangelical population both within the evangelical community and among social scientists (e.g., Hackett and Lindsay 2008). We opt for the straightforward strategy of allowing respondents to define themselves as evangelical, rather than imposing an identity based on denominational affiliation or some other criteria that respondents may or may not recognize. Because Muslim, Hindu, Buddhist, Sikh, and Jain respondents each represented less than 1% of the sample, we combined these into one category for the purposes of presentation. This does not mean, of course, that we believe these groups to be equivalent. Similarly, although we provided separate survey responses for Atheist (4.3%), Agnostic (4.2%) and No Religion (7.0%), we combine these in the tables as well.

Interview Data

In addition to the survey data, over a two and a half year period, we completed 315 in-depth interviews in person or over the phone between June 2011 and January 2014. This is the first study of its kind to feature in-depth interviews with such a wide array of religious people about their attitudes towards science, especially including groups that are not often represented in such studies, such as African American Protestants, Orthodox Jews and Muslims. Interview respondents were selected from among twenty-two religious organizations in Houston and Chicago. These organizations include Catholic, Episcopalian,

Presbyterian, Baptist, non-denominational evangelical, Reform and Orthodox Jewish, and Sunni Muslim traditions. Congregations were racially and ethnically diverse; some were predominantly white, some Latino, and others African American. A diverse spectrum of congregations was deliberately selected to enable comparisons on doctrinal commitment, race and socioeconomic status (SES).

Table 3: Qualitative Data Collection

Interviews Completed	*Houston*	*Chicago*
White Evangelical (large)	19	14
White Evangelical (small)	25	14
Low SES White evangelical	11	
White Mainline	25	13
Latino Catholic	10	20
Latino Protestant	9	
African American Evangelical (high SES)	15	
African American Evangelical (low SES)	20	15
Sunni Islam	17	9
Reform Judaism	22	18
Orthodox Judaism	14	10
White Catholic	15	
City Total	202	113
TOTAL		**315**

This paper focuses on Evangelical Protestants, although these were not a homogenous group. Interviews were conducted with African American, Latino and white evangelicals from Baptist, non-denominational and Presbyterian congregations. For the purposes of the interview portion of the data collection, we favored an organizational affiliation and "religious belief" approach to defining evangelical, since we were interested in both examining organizations that consider themselves evangelical as well as the individuals in these organizations. Since each of these congregations place similar theological emphasis on the Bible as the Word of God, a personal relationship with Jesus, and evangelism, all qualify as evangelical congregations (Hackett and Lindsay 2008; Smith et al. 1998).

In terms of evangelical congregations, the study includes two Houston African American Baptist congregations. The Houston case studies also include a predominantly white evangelical Presbyterian church, a small largely white evangelical congregation, and a Protestant evangelical Latino congregation, of a middle-low SES.

In Chicago the study includes three evangelical cases. The first is a large non-denominational conservative Protestant mega-church with several satellite locations. It is comprised primarily of young-adult, highly educated, white and high-SES congregants. We also include a suburban conservative Presbyterian church. This is a mid-sized congregation of about 500 congregants. It is a primarily white and highly educated congregation. Finally, we include an urban low-SES and a higher income African American evangelical church.

Qualitative Interviews with Congregation Leaders and Laity

Data analyzed in this paper derive from semi-structured qualitative interviews (Strauss and Corbin 1990). After selecting congregations for the study, the study's Principal Investigator obtained permission from the congregational leaders to study their congregations. Trained interviewers conducted face-to-face interviews (a small proportion of interviews were conducted over the phone). Most lasted about one hour, and all interviews were recorded with informed consent from the respondent. Two semi-structured interview guides were utilized in this study: one for congregation leaders and another for congregation members. These included Spanish language guides for Spanish language interviews—all respondents from primarily Latino congregations were offered the option of completing the interview in Spanish, which also involved a Spanish-speaking interviewer. Conversations explored understandings of the relationship between sacred texts and science, the presence of science within congregations, and opinions on controversial topics including stem cell research, science education, reproductive technologies, human origins and more. Respondents were specifically asked about their perception of any conflict between science and religion, their perspective on possible biases of scientists, and opinions on how to improve the science-religion relationship, if necessary. In order to capture the full range of congregational life, researchers interviewed leaders and laity. While many interview respondents were recommended by another respondent, researchers intentionally sought out respondents who were not acquainted with existing respondents in order to enhance the representative quality of our samples. Relevant to this paper, interviews were conducted with 142 Evangelicals.

Analysis of Interview Data

All interviews were recorded, transcribed, and edited in preparation for analysis. Our research team then systematically searched the data for inductive patterns. Emergent themes were then discussed as a team to ensure consistency, especially with team members that were participant observers.

In this study, we are fundamentally interested in the rhetoric or language evangelicals use when they think about the relationship between science and religion. This type of analysis is appropriate, both theoretically and methodologically. Theoretically, using a cultural analysis means that we are particularly interested in the way in which social actors make sense of their place in the world (Wuthnow 2011), and we are attentive to understanding the ways in which evangelicals talk about this relationship. The quotes presented reveal representative themes in the data.

Findings

Table 4 shows the percentage of respondents in each religious tradition who are scientists. Overall, 4.9% of our respondents were scientists. However, only 3.6% of Evangelical Protestants are scientists. Muslims, Hindus, Buddhists, Sikhs, and Jains have the highest proportion of scientists at 13.7%, followed by Jews (10.1%) and those who identity with the label Atheist, Agnostic, or No Religion (7.7%).

Table 4: Proportions of Scientists in Each Religious Traditions Compared to Proportion of Scientists Among All Respondents

		Religion							
	All Respondents	Evangelical[a]	Main-line	Catholics	Jews	Mormons	Muslims, Hindus, Buddhists, Sikhs, Jains	Atheists\ Agnostics No Religion	Some-thing Else
Scientist	4.9	3.6	4.5	3.9	10.1	4.6	13.7	7.7	1.7
Non-Scientist	95.1	96.4	95.5	96.1	89.9	95.4	86.3	92.3	98.3
Total[b]	100%	100%	100 %	100%	100 %	100%	100%	100%	100%

N=9,138; Percentages weighted by weight2

a. Defined as those stating that "evangelical" describes them "somewhat" or "very well"

b. May not add to 100% due to rounding

Table 5 presents a different way of looking at this issue. Instead of comparing the proportion of scientists in each religious group to the proportion of scientists among all respondents, this table compares the representation of each religious group among scientists relative to the religious group's representation in the overall sample. Again, we see that Evangelical Protestants are underrepresented in the scientist group, while Jews, Muslims, Hindus, Buddhists, Sikhs, Jains, and Atheists, Agnostics, and those with No Religion are overrepresented.

Table 5: Religious Composition of Scientist Respondents Compared to Religious Composition of All Respondents

Religion	% of All Respondents	% of Scientists	Ratio >1=Overrepresented <1=Underrepresented
	9,138	574	
	%	%	
Evangelical Protestants[a]	22.9	17.1	.74
Mainline Protestants	26.9	24.9	.92
Catholics	23.8	19.1	.80
Jews	1.9	3.9	2.05
Mormons	1.8	1.7	.94
Muslims, Hindus, Buddhists, Sikhs, Jains	2.6	7.2	2.76
Atheists/Agnostics/No Religion	15.5	24.4	1.57
Something Else	4.7	1.7	.36
Total[b]	100%	100%	

Percentages weighted by weight2

a. Defined as those stating that "evangelical" describes them "somewhat" or "very well"

b. May not add to 100% due to rounding

Looking beyond religious affiliation, Table 6 shows some selected measures of religiosity across some of our key comparison groups. As seen in the second column, our scientist respondents do not differ appreciably from the general population on many of the religiosity measures, although they are slightly less likely to consider themselves "very religious," attend religious services weekly, and pray several times a day. We see larger differences between the scientist and general populations when looking at the frequency of reading of religious texts and the likelihood of having no doubts about God's existence. Evangelicals, on the other hand, show much higher levels of religiosity on all measures when compared to the general population. Evangelicals who are also scientists are similar to evangelicals in general, but they are more likely to say that they are "very religious." The different religious beliefs of scientists and evangelicals imply how evangelicals may perceive scientists. A white evangelical[6] in a non-denominational congregation in Chicago comments that the non-religious worldview of scientists may make science itself suspect. He remarks:

> You're a scientist and you don't really believe in anything outside the naturalistic things in life, then you've almost already closed the door on anything outside of what you deem is real science or a real reality…[so] our science is going to be really flawed.

From his perspective, scientists of a different worldview are unable to perceive reality in a way that this evangelical respondent believes is valid. Ultimately, the perceived

religious differences between evangelicals and scientists appear to affect the Evangelical perception of science itself.

Table 6: Selected Religiosity Measures by Employment in Science-Related Occupation

	All respondents	Scientists	Evangelical Protestants[a]	Evangelical Protestant Scientists
N	9,138	574	2,149	104
To what extent to you consider yourself a religious person?	%	%	%	%
Very religious	18.8	15.0	44.1	51.2
How often do you attend religious services?				
Every week\Several times a week	20.1	18.2	42.4	54.2
About how often do you pray?				
Several times a day	26.4	19.1	54.7	55.6
Outside of attending religious services, about how often do you read the Bible, Koran, Torah, or other sacred book?				
Every week\Several times a week	17.0	13.5	40.5	46.8
Which one statement comes closest to your personal beliefs about God?				
I know God really exists and I have no doubts about it.	55.5	35.9	87.0	85.3

N=9,138; Percentages weighted by weight2

a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

Scientific Consumption and Views on Science Authority

Do religious groups vary in their interest and consumption of science? And do they differ in where they go to have scientific questions answered? We examine these questions in Tables 7 and 8. Table 7 shows variation in scientific interest and consumption by religious tradition. The first question in this table is, "If you saw a headline on a newspaper or website about a new scientific discovery, how likely are you to read the full story?" We focus on those who responded that it was "very likely" they would read the full story—slightly more than 25% of all respondents. There are slight differences across religious groups, but nothing especially dramatic. At 20%, Evangelical Protestants are slightly less likely to report that they would read the story. Jews, Muslims, Hindus, Buddhists, Sikhs, and Jains, as well as Atheists, Agnostics, and those with no religion were somewhat more likely to say they would read the story. Our qualitative data further reveal that evangelicals value

scientific writing and draw upon scientific sources for knowledge even if they are suspicious of some forms of science. This young man from a white evangelical congregation in Houston[7] explains his own reliance on scientific writing—emphasizing that scientific articles "usually carry a little more credibility" so he will "listen a little more with the detail…[than] If I see an article written by a marketing manager." Perspectives like these highlight the optimism that evangelicals have about the trustworthiness of scientific work (although perhaps not trust of scientists themselves), particularly compared to other sources.

We see similar differences in the responses to the second question in Table 7, "In the last month have you read in print or online any science-focused magazines, such as National Geographic, Discover, Smithsonian, Popular Science, or Scientific American?" The patterns are similar but the differences are greater than the responses to the third question in Table 7, which stated, "Please tell me how interested you are in the following things: New scientific discoveries." While 31.5% of all respondents said they are "very interested" in this topic, only 21.3% of evangelicals reported being very interested. As with the other interest and consumption questions, Muslims, Hindus, Buddhists, Sikhs, and Jains reported the highest interest levels.

Table 7: Science Consumption and Interest by Religion

If you saw a headline on a newspaper or website about a new scientific discovery, how likely are you to read the full story?

	All respondents	Evangelical Protestants[a]	Mainline Protestants	Catholics	Jews	Mormons	Muslims, Hindus, Buddhists, Sikhs, Jains	Atheists \Agnostics\No Religion	Something Else
Very likely	25.1%	20.0%	24.0%	25.4%	31.6%	22.0%	37.0%	30.6%	28.5%

In the last month have you read in print or online any science-focused magazines, such as National Geographic, Discover, Smithsonian, Popular Science, or Scientific American?

	All respondents	Evangelical Protestants[a]	Mainline Protestants	Catholics	Jews	Mormons	Muslims, Hindus, Buddhists, Sikhs, Jains	Atheists \Agnostics\No Religion	Something Else
Yes	19.3%	14.3%	19.6%	16.0%	22.5%	24.1%	31.2%	26.4	26.2%

Please tell me how interested you are in the following things: New scientific discoveries

	All respondents	Evangelical Protestants[a]	Mainline Protestants	Catholics	Jews	Mormons	Muslims, Hindus, Buddhists, Sikhs, Jains	Atheists \Agnostics\No Religion	Something Else
Very interested	31.5%	21.3%	28.0%	30.7%	43.7%	36.7%	52.7%	46.7%	36.3%

N=9,138; Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

Turning to Table 8, we note responses on how likely a respondent would be to turn to a number of authorities and information sources if she had a "question about science." Looking at the first column representing the percentages for all respondents, we see that general Internet sources like Wikipedia represent the most likely source of information, followed by magazines, someone working in a scientific occupation, and a friend or family member. Looking at the second column, which shows the responses of our scientist respondents, we see that general Internet sources are also the most popular, but scientists are more likely to consult books written by a PhD scientist and people working in science (possibly because they have greater access to such individuals). Scientists are less likely to consult religious sources, such as a religious text or leader.

Evangelical Protestants, however, are more than twice as likely as the overall sample to say they would turn to a religious text, a religious leader, or people at their

congregation if they had a question about science. The last column shows the responses of evangelical respondents who are scientists. Their responses on these issues are closer to that of their scientist peers than to other evangelicals.

Table 8: Who would you consult with a question about science?

	% saying "Very Likely"			
If you had a question about science, how likely would you be to consult the following sources?	All respondents	Scientists	Evangelical Protestant	Evangelical Protestant Scientists
	9,138	574	2,149	104
A book written by a PhD scientist	9.6	22.7	8.4	18.3
A general Internet source, such as Wikipedia	29.7	41.0	23.6	33.2
A scientific magazine, such as National Geographic, Discover, Smithsonian, Popular Science, or Scientific American	16.0	16.3	13.9	12.4
A person working in a scientific occupation	13.7	27.9	13.5	28.3
A teacher at a local school or college	8.9	9.0	10.8	5.5
A friend or family member	14.8	12.1	17.0	6.7
A religious text	4.5	2.0	10.9	2.9
A religious leader	4.1	1.6	10.0	2.7
Other people at your religious congregation	3.0	2.2	6.7	4.1

Percentages weighted by weight2

Although evangelicals show the least confidence in the scientific community and, therefore, may suspect that "a majority of scientists are more biased than unbiased"—as stated by an African American Baptist[8] whom we interviewed—we still find generally optimistic views about scientists from evangelicals. Like this Presbyterian respondent[9] from a small conservative church in Houston, many evangelicals communicate a general trust in the good intentions of science. They may, however, temper this in particular ways. He explains:

> I believe that the goal is objectivity, but I believe that scientists, just like I am, are human, subject to the same temptations that our faith talks about – greed, ego, vanity, narcissism, all of that. But I believe that what they believe in as scientists is objectivity. The greatest insult that you can give a scientist is that he skewed his research to obtain a pre-desired result.

Crucially, however, he maintains a generally positive attitude towards scientists.

Orientations to Religion-Science Relationship

How do different religious traditions view the relationship between religion and science, and how does this vary between scientists and non-scientists? We asked respondents, "Which of the following BEST represents your view. 'For me personally, my understanding of science and religion can be described as a relationship of…'"

- Conflict…I consider myself to be on the side of religion
- Conflict…I consider myself to be on the side of science
- Independence…they refer to different aspects of reality
- Collaboration…each can be used to help support the other

Table 9 shows how responses to this question varied across religious traditions. Looking at the first column we see that for the sample as a whole, most see religion and science as two entirely independent ventures (35.0%) or see religion and science as collaborating and complementing each other (38.3%). Slightly fewer than 14% of respondents stated that they view religion and science as in conflict with each other and stated that they are "on the side of religion." Just less than 13% of respondents stated that they also see religion and science in conflict, though they are "on the side of science." Together, these groups represent about 27% of respondents holding a conflict view of the religion and science relationship.

There is, however, significant variation across religious traditions. Evangelical Protestants are more than twice as likely to take a "conflict-on the side of religion" stance. They are also more likely to say that religion and science can collaborate with each other and less likely to say they are independent ventures. Evangelicals hold a number of complex narratives to promote the idea that religion and science may collaborate. A respondent from the Evangelical non-denominational church in Chicago[10] claims that science and religion "go hand-in-hand." He continues, "If you're a scientist, and you are working in your field, I just think you get to experience God's presence when you come [to work], encounter different things maybe you didn't expect." Others highlight that science and religion are collaborative forces in their own life. This evangelical from Houston,[11] who is currently studying medicine articulates this position:

> Science in my personal life has really helped me to get a better grasp on the extent of God's power… And then on the flip-side of things, my faith has helped my science learning, because I know that things I'm studying and things I'm attempting to gain better understanding about that God…I feel that God is encouraging us and God wants us to know more and to seek him and to seek after what he has created.

Contrary to expectations that religious—particularly Evangelical –faith might discourage scientific interest, this young Evangelical finds the two to be highly complementary. Jews and Muslims, Hindus, Buddhists, Sikhs, and Jains are somewhat more likely to take a pro-science conflict stance, while Atheists, Agnostics and those who say they have no religion are over four times more likely to take a pro-science conflict stance.

Table 9:View of Religion-Science Relationship by Religion

		Religion							
	All Respondents	Evangelical Protestants[a]	Mainline Protestants	Catholics	Jews	Mormons	Muslims, Hindus, Buddhists, Sikhs, Jains	Atheist Agnostic No Religion	Something Else
Conflict…I consider myself to be on the side of religion	13.9	29.4	11.9	12.2	1.4	15.8	4.8	0.8	11.0
Conflict…I consider myself to be on the side of science	12.9	1.3	6.8	6.2	21.7	1.1	19.8	51.3	8.3
Independence …they refer to different aspects of reality	35.0	21.0	38.8	41.4	45.7	33.0	39.0	34.9	42.7
Collaboration… each can be used to help support the other	38.3	48.4	42.6	40.2	31.1	50.1	36.4	13.0	38.0
Total[b]	100%	100%	100%	100%	100%	100%	100%	100%	100%

N=9,138; Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"
b. May not add to 100% due to rounding

Although the conflict view is powerful, nearly 50% of Evangelicals say that the relationship between religion and science is one of collaboration. A Southern Baptist from Houston[12] explains that "in theory the two [science and religion] should not conflict and so if one does seem to conflict I think you have to go back and make sure you interpreted things correctly." In fact, Evangelicals are the most likely of all religious groups to seek such a collaborative relationship. This suggests avenues for productive and positive relationships between scientists and evangelicals.

These findings become even more interesting when we look at Table 10, which shows how responses vary by being a scientist and being an evangelical scientist. First, we see that our scientist respondents are over twice as likely to take a pro-science conflict stance, although the majority of them hold either an independence or collaboration perspective. Looking at the last column, we see that Evangelical scientists are much more likely to hold a collaboration orientation and much less likely than either their evangelical peers or their scientist peers to hold a conflict orientation. These individuals are part of

both of these social worlds, so seem to want to find a way to make them work together rather than to see religion and science as in conflict or in different compartments.

Table 10: View of Science/Religion Relationship by Science Occupation/Evangelical Status

	All Respondents	Scientists	Evangelical Protestants[a]	Evangelical Protestant Scientists
N	9,138	574	2,149	104
Conflict…I consider myself to be on the side of religion	13.9	3.3	29.4	13.7
Conflict…I consider myself to be on the side of science	12.9	21.4	1.3	1.8
Independence…they refer to different aspects of reality	35.0	34.9	21.0	12.0
Collaboration…each can be used to help support the other	38.3	40.4	48.4	72.5
Total[b]	100%	100%	100%	100%

Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"
b. May not add to 100% due to rounding

We can build upon these findings by looking at the results shown in Table 11. This table shows responses to two questions, one about how scientists view religion and the other about how religious people view science. Overall, about one-fifth of respondents agreed that most religious people are hostile to science and that most scientists are hostile to religion. Scientists are a little more likely to say that religious people are hostile to science, but they are also a little more likely to agree that most scientists are hostile to religion. Evangelicals, though, are less likely to agree that religious people are hostile to science and much more likely to say that scientists are hostile to religion. Evangelical scientists, interestingly, do not differ from their evangelical peers in their opinion about whether religious people are hostile to science. They are *much* more likely, however, to state that most scientists are hostile to religion. This could reflect negative experiences concerning their own religion that these individuals have had in the scientific workplace. Perceptions of hostility by evangelicals may be particularly salient, as they are for this evangelical from a Southern Baptist[13] congregation in Houston:

> I think that especially in that field people I think would be more apt to find a bone in the ground and say this is the missing link, this is what proves evolution, we can finally shut up those rotten Christians.

His assertion assumes that some scientists perceive Christians as "rotten" and desire to "shut them up."

Table 11:View of Scientists' Hostility Towards Religion and Religious People's Hostility Towards Science by Religion and Scientific Occupation

	% saying "Strongly agree" or "Agree"			
How much do you agree or disagree with the following statements?	All respondents	Scientists	Evangelical Protestants	Evangelical Protestant Scientists
N	9,138	574	2,149	104
Most religious people are hostile to science.	19.8	21.9	11.5	7.8
Most scientists are hostile to religion.	21.9	24.1	36.8	57.2

Results weighted by weight2

Table 12 examines religious groups' perspectives on the ability and nature of science. Looking at the first row, it is apparent that Evangelicals are about half as likely as the general population to strongly agree with the naturalistic perspective that "given enough time science will be able to provide a natural explanation for everything." Evangelicals are also the most likely of any group—except Mormons—to strongly disagree with this statement. In contrast, Jews and those adhering to one of the Eastern traditions, are the only religious groups to be *more likely* than the general population to strongly agree with this statement. This may suggest that there are different theological perspectives within these traditions that have relevant implications for understandings of science. Turning to the second row, we see perspectives on consideration of miracles in scientific theories and explanations. It's noteworthy that more than a third of all respondents strongly agree or agree with the statement, "scientists should be open to considering miracles in their theories or explanations." Among all religious groups, Evangelical Protestants are most likely to strongly agree with this statement. Taken together these two statements shed light on the public's perspective on the appropriate boundaries and ultimate capabilities of science.

Table 12:Views on Ability and Nature of Science by Religion

Given enough time, science will be able to provide a natural explanation for everything.

	All	Evang. Prot.[a]	Mainline Prot.	Catholic	Jews	Morm.	Muslims Hindus Buddhist Sikhs Jains	Atheist Agnostic No Religion	Other
Strongly agree\agree	28.2	14.4	22.9	31.8	38.2	20.0	51.0	48.7	24.3
Neither	40.6	35.5	46.9	43.5	35.1	27.3	34.9	35.6	42.2
Strongly disagree\disagree	31.2	50.1	30.2	24.7	26.7	52.7	14.2	15.7	30.5
Total[b]	100%	100%	100%	100%	100 %	100%	100%	100%	100%

Scientists should be open to considering miracles in their theories and explanations.

	All	Evang. Prot.[a]	Mainline Prot.	Catholic	Jews	Morm.	Muslims Hindus Buddhist Sikhs Jains	Atheist Agnostic No Religion	Other
Strongly agree\agree	38.0	59.6	36.4	36.8	20.3	56.6	40.2	11.4	33.4
Neither	39.9	32.5	45.5	46.5	27.7	32.3	32.2	34.1	40.7
Strongly disagree\disagree	22.2	7.9	18.1	16.6	52.0	11.1	27.6	54.5	25.9
Total[b]	100%	100%	100%	100%	100 %	100%	100%	100%	100%

N=9,138; Percentages weighted by weight2

a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"
b. May not add to 100% due to rounding

Evolution, Creationism, and Intelligent Design

For evangelicals who do see religion and science in conflict (recognizing that many do not), it is important to understand what undergirds their perspective. Often this perception is closely tied to views on human origins. Similarly an African American evangelical affirms science but also mentions: [14]

> I get that scientists have good theories of evolution and all that type of stuff of how we got here and that type of thing. And I mean, like I said, I understand that you have your opinion and your theory on it but being a religious person I obviously think different.

And a member of the largely white evangelical congregation in Houston remarks:[15]

> As a Christian, creation- really it's all or nothing. Either the entire Bible's right or it's all wrong. Either everything inside of it is 100% accurate, or none of it is. So if creation could be disproven.... So just completely take that away, that just devastates my entire way of life, my entire being….Nobody wants to change. Christians don't want to change, and atheists don't want to change.

These excerpts emphasize the importance of the creation/evolution question in the conflict narratives offered by respondents. Thus, we consider the topic of human origins and the breakdown on attitudes towards evolution among our religious respondents. Table 13 shows views of "Creationism, Intelligent Design, and Evolution by Religious Tradition." We see that overall, 21.5% of respondents believe in a strong-creationist view—the view that "God created the universe, the Earth, and all of life within the past 10,000 years." When examining particular religious groups, however, we see that evangelicals were twice as likely (43.3%) to support a strong-creationist belief. Mormons expressed similar support for creationism. Looking at the bottom of the table, we find that just less than 10% of all respondents believed in a purely natural view of evolution. Despite these stark differences in quantitative data, qualitative interview data remind us that perspectives on important scientific issues—like evolution—are fungible and can change over time. A young evangelical from a non-denominational church in Chicago[16] recalls that as a younger person he "believed that the world was only as old as when you trace back to Adam in the Bible" but over time he experienced a "big swing [from believing] the world's pretty young, versus evolution and the world's really, really old." Reflecting on his prior position, he comments "'oh, wow, that was really dumb that I believed that." These data motivate future research on the issue to consider not only the factors that affect religious people's views on controversial topics, but also which factors might change these perspectives.

Table 13: Views of Creationism, Intelligent Design, and Evolution by Religious Tradition

	All	Evang. Prot.[a]	Main. Prot.	Catholic	Jews	Morm.	Muslims Hindus Buddhist Sikhs Jains	Atheist Agnost. No Religion	Some thing Else
	% Saying "Definitely true"								
Creationism – God created the universe, the Earth, and all of life within the past 10,000 years.	21.5	43.3	17.7	19.2	6.8	37.9	9.6	2.8	16.9
Recent Human Creation— God created the universe and the Earth billions of years ago; Plants and animals evolved over millions of years from earlier life forms, but God intervened to create humans within the past 10,000 years	9.7	12.4	8.3	14.4	2.2	8.7	8.7	3.0	7.6
God-guided Evolution – God created the universe and the Earth billions of years ago; God started and has guided human evolution over millions of years.	17.6	23.3	18.4	23.4	5.7	15.0	15.1	2.9	10.9
Intelligent Design – the universe and Earth came into being billions of years ago, and humans evolved over millions of years according to the design of an Intelligent Force.	7.1	8.1	5.6	9.0	4.8	12.0	6.7	4.4	9.2

God-initiated Evolution – God created the universe and the Earth billions of years ago; but all life, including humans, evolved over millions of years from earlier life forms due to environmental pressures to adapt and without any guidance from God or an Intelligent Force.	5.4	5.5	4.3	9.0	4.1	4.0	3.7	2.1	6.0
Natural Evolution – the universe and Earth came into being billions of years ago; all life, including humans, evolved over millions of years from earlier life forms due to environmental pressures to adapt; there was no God or Intelligent Force involved in either the creation or evolution of life.	9.5	2.7	4.1	6.7	17.1	1.7	19.6	31.2	10.0

N=9,138; Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

Table 14 examines these same questions but compares scientist respondents with evangelicals and evangelical scientists. We see in the top row that scientists were half as likely to support a strong-creationist view. Evangelical scientists, though, were more likely than the overall sample but less likely than evangelicals overall to support this strong-creationist view. Scientists were twice as likely as the overall sample to support a purely natural view of evolution. Evangelical scientists, however, mirror their evangelical peers in their lack of agreement with the natural evolution view.

Table 14: Views of Creationism, Intelligent Design, and Evolution by Scientist-Status and Evangelical-Status

	All respondents	Scientists	Evangelical Protestants[a]	Evangelical Protestant Scientists
N	9,138	574	2,149	104
	% Saying "Definitely true"			
Creationism – God created the universe, the Earth, and all of life within the past 10,000 years.	21.5	9.2	43.3	31.7
Recent Human Creation— God created the universe and the Earth billions of years ago; Plants and animals evolved over millions of years from earlier life forms, but God intervened to create humans within the past 10,000 years	9.7	4.0	12.4	6.4
God-guided Evolution – God created the universe and the Earth billions of years ago; God started and has guided human evolution over millions of years.	17.6	8.4	23.3	12.2
Intelligent Design – the universe and Earth came into being billions of years ago, and humans evolved over millions of years according to the design of an Intelligent Force.	7.1	5.8	8.1	4.1
God-initiated Evolution – God created the universe and the Earth billions of years ago; but all life, including humans, evolved over millions of years from earlier life forms due to environmental pressures to adapt and without any guidance from God or an Intelligent Force.	5.4	3.5	5.5	3.0
Natural Evolution – the universe and Earth came into being billions of years ago; all life, including humans, evolved over millions of years from earlier life forms due to environmental pressures to adapt; there was no God or Intelligent Force involved in either the creation or evolution of life.	9.5	18.2	2.7	2.2

Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

The next series of questions we examine asked respondents if they would favor or oppose teaching creationism or intelligent design instead of, or in addition to, evolution in public schools. Table 15 shows the percentage in the overall population and each religious

tradition that would "strongly favor" each policy. Looking at the top row, we see that among all respondents about 18% would strongly favor teaching creationism instead of evolution. Evangelical respondents, however, are more than twice as likely to say they strongly favor teaching only creationism. Specifically, 42.3% of evangelical respondents stated they would support this policy. It is worth noting that this percentage is almost identical to the percentage holding a strong creationist belief in Table 13. With 26.9% strongly favoring a creationism-only curriculum, Mormons also show a higher level of support than the overall sample, although not as high as evangelicals. Interestingly, evangelicals are not nearly as supportive of teaching "intelligent design," although they are slightly more likely than the overall sample to favor such a policy.

Table 15:Support for Teaching Creationism and Intelligent Design in Public Schools by Religious Tradition

	All Respondents	Evang. Prot[a]	Mainline Protestants	Catholics	Jews	Mormons	Muslim Hindus Buddhist Sikhs Jains	Atheists\Agnostics	Something Else
Would you generally favor or oppose teaching…									
	% Saying "Strongly Favor"								
…creationism instead of evolution in public schools?	17.5	42.3	12.6	9.5	3.1	26.9	6.1	3.4	19.0
…creationism along with evolution in public schools?	16.9	25.1	18.3	16.5	8.0	27.7	12.4	5.7	8.9
…intelligent design instead of evolution in public schools?	7.1	13.8	4.5	4.8	1.8	14.7	7.0	3.2	12.4
…intelligent design along with evolution in public schools?	10.5	13.8	10.7	10.4	5.5	17.6	10.8	5.2	9.0

N=9,138; Percentages weighted

by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

Table 16 shows the responses of scientists and evangelical scientists to these questions. Here we see striking differences between scientists and evangelicals. While 42.3% of evangelicals strongly favored teaching only creationism, just 10.3% of scientists strongly favored this. The views of evangelical scientists are closer to their evangelical peers than their scientist peers. Evangelical scientists, however, are more likely than their evangelical peers to support teaching creationism and\or intelligent design along with evolution.

Table 16: Support for Teaching Creationism and Intelligent Design in Public Schools by Scientist-Status and Evangelical-Status

	All respondents	Scientists	Evangelical Protestants[a]	Evangelical Protestant Scientists
N	9,138	574	2,149	104
Would you generally favor or oppose teaching…	**% Saying "Strongly Favor"**			
…creationism instead of evolution in public schools?	17.5	10.3	42.3	37.4
…creationism along with evolution in public schools?	16.9	14.4	25.1	31.9
…intelligent design instead of evolution in public schools?	7.1	3.2	13.8	11.1
…intelligent design along with evolution in public schools?	10.5	10.0	13.8	17.5

Percentages weighted by weight2
a. Defined as those Christians stating that "evangelical" describes them "somewhat" or "very well"

These results help demonstrate that those interested in understanding what provokes religious peoples' perceptions of conflict between science and religion should consider that science is not a monolithic concept. Rather, it includes many smaller areas of inquiry, only some of which result in divisive outcomes for religious people. Moreover, the data illuminates what it is specifically about origins debates that may motivate some religious persons' avid opposition to evolutionary theory—here it seems that what is at

stake for some of these respondents is not a correct understanding of science, but instead, an influence which provides meaning in life.

In closing, for the purpose of this paper, which is given to members of the scientific community, these results help demonstrate something significant about how we interpret conflict narratives in the science-religion relationship. That is, what motivates people to have a certain perception may hinge on a specific issue within science rather than all of science. Science, of course, is not a monolithic field of knowledge. It includes numerous areas of inquiry, some of which may provoke divisive outcomes for some religious people. The data from this study, however, compel us to consider spaces where there is openness to dialogue between the scientific and religious communities. The emphasis on human origins has narrowed the conversation. Of course, this is not surprising, given that when the contrasts are greater there is more fodder for debate and controversy. Moreover, this controversy is actively propagated through events like the recent debate between Ken Ham—of the Creationist Museum—and Bill Nye "the Science Guy." Though, in the grand scheme of the conversation on religion and science, it would serve us well to consider what everyday religious people think—not only the most vocal voices and visible debaters. It would also serve us well to remember the topics on which there is greater agreement or openness to collaboration, such that a framework of trust and mutual respect might develop between these two communities. If this framework can be strengthened from the perspective of ordinary Americans, then controversial debates over specific topics, such as human origins, have a chance to become productive spaces of dialogue and learning.

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Notes

[1] See Ellison and Musick (1995) for a notable exception to this statement.

[2] http://www.people-press.org/methodology/collecting-survey-data/the-problem-of-declining-response-rates/. The recent Pew polls achieve less than a 10% response for example.

[3] See http://www.bls.gov/

[4] This question comes from the background panel variables. Panel members were asked, "Altogether, how many jobs do you have?" Those respondents stating that they had at least one job were then asked, "In your current job, what kind of work do you do?" In answering this question respondents chose from 28 options reflecting the Bureau of Labor Statistics' major occupational groups.

[5] The precise question was: "How well do the following terms describe your religious identity? Evangelical"

[6] Nondenominational evangelical church, Chicago, Interview 1, conducted 07/15/13, male, white, 47 years old, radiology technician.

[7] Southern Baptist Church, Houston, Interview 9, conducted 7/29/11, male, 31 years old, white chemical engineering undergrad and masters in business administration.

[8] African American Baptist, Houston, Interview 11, conducted 07/24/11, male, 60 years old, African American, printing company employee.

[9] Presbyterian Church, Houston, Interview 17, conducted 10/28/12, male, 65 years old, white, attorney.

[10] Nondenominational evangelical church, Chicago, Interview 5, conducted 07/18/13, male, 40 years, White

[11] Southern Baptist Church, Houston, Interview 12 conducted 10/14/11, female, 19 years old, pre-med undergrad

[12] Southern Baptist Church, Houston, Interview 18, conducted 05/29/11, white, female, 38 years old

[13] Southern Baptist Church, Houston, Interview 5, conducted 7/5/11, male, 24 years old, white, pilot

[14] African American Baptist Church, Chicago, Interview 5, conducted 07/18/13, female, 23 years old, African American

[15] Southern Baptist Church, Houston, Interview 5, conducted 7/5/11, male, 24 years old, white, pilot.

[16] Evangelical nondenominational church, Chicago, Interview 12, male, 27 years old, white, banker