



It All Depends on What You Want to Believe: How Young Adults Navigate Religion and Science

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Abstract

Background Religion and science are typically portrayed as fundamentally at odds and in competition over truth claims. Yet recent studies have shown that many Americans, including scientists, do not necessarily hold such a straightforward perspective on this complicated relationship. The majority of current studies have been limited in fully capturing the way people construct and understand the relationship between these domains given their predominant use of close-ended survey methodologies.

Purpose This study seeks to enhance our knowledge of how people navigate religion and science issues by allowing young adults to respond to open-ended questions from semi-structured, in-depth interviews about how they navigate the domains of religion and science.

Methods We analyze 214 qualitative, in-depth interviews with young adults who participated in Wave 3 of the National Study of Youth and Religion.

Results Results confirm that a warfare model is not the dominant perspective among young adults today. Rather, analyses revealed five predominant themes among young adults: (1) They commonly construe this relationship in purely individualistic terms, believing people do and should sort the truth out for themselves; (2) They see the two as mutually deficient and therefore both are needed to answer different questions; (3) Their understanding of this relationship reduces to how one views the origins of the world; (4) They believe the two can actually be mutually supportive; and (5) Any contention between the two stems from institutional conflicts, primarily in the realm of education, not competing claims about fundamental truths.

Conclusions and Implications Beliefs about religion and science among young adults are complex and not captured fully by close-ended survey questions. This question is clearly one that most young adults have considered and can articulate. Future research should consider how these beliefs are formulated and what influence they have on life outcomes.

Introduction

A growing body of social scientific research has sought to explain how individuals navigate the domains of religion and science. This research has typically focused on understanding people's beliefs about whether the claims of religion and science are somehow compatible or in irreconcilable conflict, and the factors that shape those beliefs (e.g., Longest and Smith 2011; Scheitle 2011; Baker 2012; Hill 2014; O'Brien and Noy 2015; Ecklund and Scheitle 2018; Evans 2018). Other recent research has built on these findings to show how these perspectives may impact important outcomes. For example, Longest and Uecker (2017) showed how young adults' views on religion and science significantly impacted their future religious commitments. Young peoples' perspective on the origins of the world has been shown to even steer them into particular academic trajectories, which may relate to future socioeconomic status (Longest and Uecker 2018). Among adults, those who reject evolutionary accounts tend to express lower levels of support for science funding (Freeman and Houston 2011) and higher levels of support for teaching evolution and creation in public schools (Berkman et al. 2008).

Based on the weight of the evidence suggesting that views on the relationship between religion and science may be consequential for a variety of attitudes and life outcomes, we seek in this study, through the use of qualitative data, to gain a more comprehensive and nuanced understanding of these views than can be culled from a survey-based approach, which has been the predominant method for understanding religion and science beliefs among non-scientists. Indeed, nearly all of the research on attitudes toward religion and science is based on responses to survey questions with researcher-defined response categories that limit the ability of participants to articulate their understanding of this complex issue. Our findings suggest that while some young adults view religion and science as at odds with each other, most young adults are able to skirt issues of irreconcilable epistemological conflict between religion and science through a variety of cognitive strategies.

Background

The question of how individuals reconcile scientific knowledge and religious belief has garnered significant attention from social scientists in recent years. Evans and Evans (2008, p. 88) noted that most of the work in this area, both historically and in contemporary work, operates from the assumption of irreconcilable conflict between the truth claims of science and those of religion—what they called the “warfare narrative.” This epistemological conflict assumption has limited the development of our knowledge of how religious and scientific fields are actually navigated by individuals in the modern world.

As Evans and Evans (2008) argue, setting aside this assumption of conflict opens up new areas of exploration. For example, Barbour (2000) theorizes four

potential views of science and religion. The first of these views (what he calls conflict) is similar to the warfare narrative, in that individuals may hold that science and religion are in fact at odds. The independence perspective argues that science and religion are not in conflict because they ask and answer entirely different questions. Gould's (1997) description of religion and science as asking fundamentally different types of questions—what he called “nonoverlapping magisterial”—is a prominent articulation of this independence perspective. The dialogue perspective, according to Barbour, argues that science and religion have methodological and conceptual parallels and thus may be speak to one another, even if they are not in agreement. His fourth perspective, integration, suggests that religion and science can benefit and promote one another. One example of integration is the “God of the gaps” viewpoint, which resolved the potential conflict between religion and science by arguing that while science can explain certain events there are particular occurrences that are incomprehensible through human means (Coulson 1955; Gorsuch and Smith 1983; Lupfer et al. 1996; Preston and Epley 2009). In these instances, one can rationally turn to God as an explanation. This typology is a useful starting point for broadening our understanding of how individuals can conceivably understand the science and religion relationship. Yet it is a researcher-defined model and may not reflect people's lived experience or their more nuanced constructions of this relationship.

In recent years sociologists (and other social scientists) have become interested in what individuals actually believe about science and religion. This line of inquiry has typically taken two approaches: (1) detailing the religious lives of scientists, and (2) categorizing individuals based on their responses to survey questions about science and religion.

The first strategy has yielded a number of insights into how religious faith may be incorporated by professional scientists. Earlier studies indicated support for the traditional notion that academics are anti-religion, as 93% of elite scientists in the National Academy of Sciences reported not believing in a personal god (Larson and Witham 1998). According to more recent survey data from the Religion among Academic Scientists project, however, most scientists at elite US research universities do not view science and religion as being in conflict, and their views are shaped by both their religious upbringing and their current religious context (Ecklund and Scheitle 2007; Ecklund and Park 2009). Data from the Politics of the American Professoriate Survey (2006) show that 80% of physical and biological sciences professors in the US believe in God, and only 37% of these professors consider themselves “not religious” (Gross and Simmons 2009).

The 70% of scientists who said that religion and science “sometimes” conflict (not “never” or “always”) employed a variety of strategies to navigate the relationship between religion and science: They redefine categories by conceptualizing religion as something more akin to spirituality, they point to elite scientists who have successfully (in their minds) integrated religion and science, and they actively engage in discussions about religion and science (Ecklund et al. 2011). It is clear that even those who are well-versed in science can maintain religious identities, casting doubt on the dominance of the warfare perspective.

The second strategy for understanding the interaction of religion and science, which has been aimed at shedding light on what typical Americans think, has been to classify individuals based on their responses to survey items about science and religion. These studies have also yielded a number of insights. Findings from the 2007 Baylor Religion Survey suggest just 17% of Americans agree or strongly agree that “religion and science are incompatible,” with roughly half of those saying they were incompatible favoring science and the other half favoring religion (Baker 2012). Similarly, Scheitle’s (2011) analysis of US college students finds that 69% view religion and science as either entirely independent from one another (answering different questions and thus not in conflict) or in a collaborative relationship. Another 17% view the two in conflict and side with religion, while 14% have a conflict perspective and side with science (Scheitle 2011). These percentages are similar among all US adults (Ecklund and Scheitle 2018). Notably, Ecklund and Scheitle’s (2018) study is mixed-methods, including in-depth interviews, but these interviews are used mostly to illustrate Barbour’s (2000) researcher-defined categories rather than as material from which to construct a typology. Latent class analysis of the General Social Survey suggests that 43% of Americans prefer religious explanations to scientific ones, 36% prefer science to religion, and another 21% view both religion and science in a positive light (O’Brien and Noy 2015). Longest and Smith (2011) compared responses of young adults on four questions about religion and science and found that of their 16 possible configurations, none had more than 20% of respondents and eight had at least 5% of respondents. Overall these studies suggest a lack of a dominant viewpoint on the relationship between religion and science.

Although these classifications are helpful in revealing the diversity of approaches people take in understanding the relationship between religion and science—and confirm Evans and Evans’ (2008) contention that the warfare assumption is a poor one—these survey analyses are limited in what they can tell us. Responses to surveys tell us about deep-seated cultural schemas that shape individuals’ decision-making (Vaisey 2009), but they tell us little about how individuals actively think about such matters. Indeed, survey responses typically force respondents to report one of a limited number of options, and those options may not accurately or fully reflect their thinking. They also assume that respondents have thought about the issue, and further have some coherent understanding of how religion and science may interact. Estimates of conflict and compatibility attitudes from survey data are also highly sensitive to question wording and response categories. For example, Hill (2019, forthcoming) shows that when offered a binary choice between religion and science being “often in conflict” versus “mostly compatible,” the majority (54–55%) of respondents choose a conflict perspective. If forced to identify outright incompatibility, however, that percentage dwindles considerably: as mentioned above, only 17% agree that “Science and religion are incompatible.” Response options also matter considerably. When asked to choose whether religion and science “generally agree,” “generally conflict,” or are “not related...in any meaningful way,” only about a third choose the conflict perspective.

Results from surveys, therefore, may oversimplify people’s perspectives or produce seemingly contradictory findings. In addition to the issues related to question wording and response categories, surveys often force respondents to

choose only one possible viewpoint on the relationship (e.g., Scheitle 2011). Yet, as noted above, many young adults display more complex perspectives when allowed to select multiple options. The latter approach, however, can lead to results that are difficult to interpret. For example, Longest and Smith (2011) report 17% of young adults claim to agree that religion and science are in conflict *and* compatible. They also find that another 18% of young adults claim the two are in conflict but that their religious faith has been strengthened by science. While these results cast doubt on survey items that constrain young adults to singular viewpoints, they do not clarify how young adults are able to construct an understanding that allows for such seemingly conflicting responses. Clearly there is considerable nuance in people's thinking on this question that has not been picked up through survey methods.

To overcome these challenges and to better understand how Americans view the relationship between religion and science, we analyze data from qualitative, in-depth interviews with young adults who participated in the third wave of the National Study of Youth and Religion (NSYR). The script for these semi-structured interviews included a question about what respondents thought about the relationship between religion and science, providing us with open-ended responses to a direct question about religion and science from all interviewees. Because our sample is of young adults, the findings are not generalizable to the full adult population or specific sub-groups, such as scientists. But youth are often considered to be a window into the world of adults (Smith and Denton 2005), and these young adults represent the cohorts that will be influencing and making public policy in the near future.

Studying young adults is particularly interesting and important for a number of other reasons. They are most proximate in time to their formal exposure to scientific knowledge (in high school and, in some cases, college science courses). They are also experiencing—or just emerging from—a time of the life course characterized by considerable religious change (Uecker et al. 2007). As Arnett (2004) points out, emerging adulthood (defined as being between the ages of 18 and 25) can be a time of deliberate and extensive identity exploration. Young adults in this age range, therefore, may be more likely to be considering where they stand on key issues both due to their heightened exposure from schooling and their personal search for defining who they are. While this phase of the life course is often seen as one of dramatic changes, studies have shown a great deal of continuity between how young adults settle these issues and who they become as adults (Shanahan and Macmillan 2007). Thus, using young adults is beneficial for understanding people's perceptions of the relationship between religion and science because they are more likely to have considered it recently and therefore find discussing their viewpoints easier *and* these perspectives have consequences for the paradigms that will exist among the next cohort of adults.

We employ a grounded theory approach for our analyses. First, we allow respondents to speak for themselves, which affords us the potential to identify more (or less) nuanced responses to this question than is possible from either an *à priori* classification system or forced-choice survey responses. Moreover, it helps us to uncover the issues that respondents view as salient as they consider this question.

Data, Measures, and Methods

The data for this study come from the third wave of the National Study of Youth and Religion (NSYR), a nationally representative, longitudinal study of teenagers and, later, young adults that includes four waves of survey data and in-depth interview data. At the time of the 2007 wave used for this study, the respondents were all between the ages of 18 and 23.

A subsample of 230 respondents who completed the third wave survey were selected for in-depth interviews, including 151 who were interviewed in the first wave and 79 who were added to the interview sample to fill out particular demographic characteristics lost through survey attrition and to account for any training effects in the interviewees. Participants in the first wave interviews were selected from survey respondents using a stratified quota sample based on several demographic factors. This sampling method was employed to provide a representative range of teen experiences. Interviewers followed a semi-structured interview guide that sought to uncover further detail and explanation on many of the issues covered in the survey. All interviews were recorded and transcribed. The information we use in this study comes primarily from these third wave interviews, although we also draw upon information from their first wave surveys to contextualize participant responses.

During the in-depth interviews, interviewers were guided to ask, “I want to ask a few questions about religion and science. For some people those are in conflict, for others there is no conflict. What is your general view about the relationship between religion and science? Are they compatible? In conflict? Different sorts of things? Why do you think that?” When respondents replied with short or ambiguous responses, interviewers could probe with basic follow ups, such as “What do you personally think of this relationship,” “How do you see the two being related,” or “So you believe there is a conflict.” Of the 230 completed interviews, 214 provide viable responses to this question. Of the 16 that did not, seven were not asked this direct question about religion and science, while the remaining nine had substantial missing information throughout the interview or problems with the recording and transcription. Table 1 provides descriptive information about the interviewees used in this analysis.

Across most of these key measures, the interview sample is similar, on average, to the full NSYR Wave 3 survey sample (see Smith and Snell (2009) for descriptive statistics of the full sample). The first set of measures indicates that the sample exhibits moderate levels of religiosity on average, with means showing that respondents attend religious services between a few times and many times per year, see religion as somewhat important to their daily lives, pray several times per month, read scriptures less than once per month, and have two religious friends. Their denominational affiliations are similar to those of the general population, except there is a higher proportion of Mormons in this interview sub-sample. The interview sub-sample grew up with moderately religious parents who attended services once a month and thought religion was very important, on average. The average respondent also grew up in a middle-class home with

Table 1 Comparing Interview Sample to Full Wave 3 Sample Means on Key Variables

	Interview Sample (n=214)	Wave 3 Sample (n=2263)	Range
Frequency of Religious Service Attendance	1.67	1.59	0,4
Importance of Religion in Daily Life	2.14	2.21	0,4
Frequency of Personal Prayer	1.94	2.07	0,4
Frequency of Reading Scriptures	1.11	1.10	0,4
Number of Religious Friends (max =5)	2.19	2.16	0,5
<i>Denomination Affiliation</i>			
Evangelical Protestant	.24	.29	0,1
Mainline Protestant	.12	.11	0,1
Black Protestant	.07	.08	0,1
Catholic	.13	.18	0,1
Jewish	.07	.01	0,1
Mormon	.06	.02	0,1
Other religion	.05	.03	0,1
Indeterminate Christian	.03	.04	0,1
Not religious	.22	.25	0,1
Believe Religion and Science Conflict	.64	.71	0,1
Believe Religion and Science Compatible	.36	.31	0,1
Religious Faith Strengthened by Science	.46	.41	0,1
Science Should be Free from Religion	.49	.51	0,1
Parent Religious Service Attendance (W1)	4.64	4.39	1,7
Parent Religious Importance (W1)	5.03	4.99	1,6
Parent-Teen Closeness (W1)	2.22	2.24	.4,3.08
Parent Monitoring (W1)	2.53	2.62	.2,4
Percent of Close Non-Parental Adults from Congregation (W1)	35.31	37.98	0100
Parent's Income (in thousands) (W1)	60.59	56.71	5105
Parents' education (W1)	2.52	2.15	0,4
Two-parent biological family (W1)	.59	.55	0,1
Age	19.98	20.01	18,23
Female	.50	.51	0,1
<i>Race</i>			
White	.64	.69	0,1
Black	.15	.15	0,1
Hispanic	.11	.10	0,1
Other race	.09	.06	0,1
In College	.48	.39	0,1
Ever Attended College	.71	.56	0,1
<i>Census Region</i>			
Northeast	.10	.11	0,1
South	.30	.42	0,1
Midwest	.35	.28	0,1
West	.25	.20	0,1

All measures from the Wave 3 survey unless otherwise noted

parents making \$60,000 per year and having some post-secondary education. The racial and regional distributions follow population patterns, with the exception of a limited proportion of respondents from the Northeast. About 50% of interviewees are attending college at the time of the interview, while 71% reported ever having attended some college, the latter being about 10% higher than the survey sample. Overall, the interview sub-sample appears to provide an appropriate representation of young adults on measures pertinent for this study.

We followed a multi-stage process to analyze the responses to the interview question. First, the first author read through all of the interview responses, taking general notes on prevalent and recurrent responses. While not the main focus of the analyses, to understand whether the warfare perspective discussed above is sufficient for understanding young adults' perspectives, the first author began by simply looking for beliefs about religion and science being at odds. The first author assessed both explicit statements of agreement with a conflict or compatible view of the relationship between religion and science, as well as the overall implied meaning of the response to determine the appropriate category. Young adults who took a conflict perspective said things like: "I think at the point where we are now scientifically, they seem to be very in conflict," and "I personally think they do conflict. I mean, evolution versus God's creation or whatever." Other young adults expressed viewpoints that fit more with a non-conflict perspective, perhaps similar to the independent, dialogue or integrative perspectives outlined by Barbour (2000). For example: "I don't know about compatible—I don't really think of them, to—I don't think they're that connected," and "I think like the foundation for science, like modern science comes from the Bible. The idea that God created the world with order and purpose and put certain characteristics in it and created it reasonably,"

Next, the first author returned to the interviews to identify dominant emergent meanings and group them into themes. At this stage, a primary set of five such themes was identified. As a final step, each author reread each interview response and coded it for its expression of each theme. Given that the themes were not mutually exclusive, respondents could be categorized as expressing multiple themes. The authors agreed on over 70% of cases for each of the five themes, with a peak agreement of 98%. Given this high level of correspondence and the nuance of some of the themes, a respondent was classified as expressing the theme if either author coded them as such. This step allows us to produce a summary distribution table and provide a picture of the general prevalence of each theme among young adults, as shown in Table 2. We detail the substantive meaning of each of these themes in the findings below, using illustrative responses to further clarify and explicate how young adults construct the relationship between religion and science.

Results

The first step of classifying responses into conflict and non-conflict perspectives indicates that the majority of young adults do not believe religion and science are in opposition. Only 36% of interview respondents reported a definitive perspective that the two conflicted, while over 60% expressed some view of the two as being

Table 2 Distribution of Respondents by Theme (n = 214)

	Frequency	Percent
Individual	85	39.72
Complementary	27	12.62
Origins	118	55.14
Accommodation	73	34.11
Institutional	23	10.75

Themes are not mutually exclusive, meaning respondents can be classified as expressing multiple themes. Thus percents do not sum to 100

compatible or independent. Thus, consistent with recent survey-based research, a minority of young adults express the typical warfare model of religion and science being at inextricable odds, but the majority do not take this view. And even among those who do espouse a generally conflict perspective, nuance and other important narratives emerge when they are prompted to elaborate on how they perceive this relationship.

The question then becomes: Exactly how do young adults construct their understanding of the relationship between religion and science if it does not fit within the popular, straightforward conflict narrative? Below we discuss the five dominant themes that ran through young adults' explanations of how and why religion and science may be related.

Individual

One of the prominent themes to emerge across the responses was a conceptualization of the issue being a personal and individual matter. Young adults explained their views on the relationship between religion and science as being almost completely rooted within the individual. Often respondents would quickly note that “it totally depends on someone’s personal beliefs,” “it’s to each their own,” and “it all depends on what you want to believe.” Young adults make sense of the relationship between religion and science by constructing it as something that people must sort out for themselves.

This type of individualistic perspective on how people should and do understand the world was expressed by almost 40% of the sample, fitting with other studies of young adults (Smith et al. 2011). What is particularly interesting about young adults using this schema in this instance is, unlike the moral correctness of individual-level behaviors such as sex or substance abuse, this debate would seem to inherently be about two institutions or realms that exist outside and above the individual. Yet, even when posed with a question about the relationship between such domains, young adults still see the issue as being individually relative, absent a resolution that would exist or apply across people.

There were of course exceptions to this individualistic model. A few respondents took more definitive stances on the inherent properties of religion and science. As one respondent claimed, “Science can be proven with facts. I mean here

is the evidence. It is real. Religion is like ‘so believe, come on.’” This type of claim that science is about empiricism and religion is about faith, making them fundamentally different as structural entities, was espoused but only among a minority of respondents.

Young adults’ perception of the relationship between religion and science as an individual issue extends to how they resolve the potential tension between the two for themselves. Many young adults claimed that they simply decided what made the most sense in thinking about whether the two might be in conflict or compatible. As one respondent noted, “I try to keep a fairly open mind. I know what I believe, I know what’s there.” This response encapsulates many similar sentiments that the “truth” about this relationship was ultimately up to the individual to discover or find. Others went further to claim that this discovery was an active or intentional process in that the person can choose which parts to accept or reject, such as the young adult who claimed, “I think the two can be very compatible. There are parts of science that I totally agree with over some of the religious things that conflict. Like for example, I believe in evolution. It’s pretty much scientifically proven. I just see it as that’s something that’s more literal. I read religion as a more metaphorical thing so therefore, I think the two are very compatible.” Notice this respondent’s heavy use of “I” and “can” in how he has constructed his understanding of the relationship between the two. He is not claiming that this perspective is the most or only valid conceptualization, but rather that this is how he has chosen to see the intersection.

Many young adults took this individual construction even further by focusing on people coming to an understanding of this relationship based on what they already wanted to believe. Exemplifying this perspective, one young adult claimed, “They can be opposite *if you want them to*, and they can be—they can match really well *if you want them to* (emphasis added).” Here it is not only about what the person actually believes but rather about how she hopes or wants to see the two come together. Another respondent supports this idea in her own view in saying “for the way religion influence my life, uh, I’d say to me they’re compatible because I want them to be.” Or as one respondent claims, “I think that you can believe in the Bible and in science, you just have to, if you believe in the Bible be able to ignore scientific evidence and if you believe in science, be able to ignore biblical evidence.” This last quote is an acute example of this view that the relationship is not about the ultimate truth or validity of either religion or science, rather it is purely about how the individual wishes to bring the two together, regardless of the actual evidence or claims made by either.

Not only is the prominence of this individualistic perspective important in explaining how young adults think about the relationship between religion and science, it also contradicts the warfare model as the dominant perception. Young adults do not even see this issue as being about two competing institutions or structures, much less about fundamental truths or ontological models of the world. In claiming that individuals decide how religion and science may be joined or not negates the idea that these two must be or are at odds. Even when young adults perceive a conflict between the two, they often posit it as stemming from individual concerns, such as this respondent who concluded, “it’s just like anything else, your point of view, if you go into the subject of science versus religion from a science standpoint, you’re

to going to sit there and you're going to undermine something. Whereas if I go at it from a religious standpoint, then I'm going to try to undermine your science." The use of "your" science at the end does not seem accidental, but rather emphasizes that idea that religion and science, as understood by many young adults, are rooted within individuals' own personal logic and reasoning, not as ontological or epistemological meta-schemas.

Complementary

Within the larger theme of individuals determining their own version of the relationship between religion and science, many young adults (13%) highlighted the limits of either religion or science as an all-encompassing worldview. Here, young adults articulated a view similar to the "God of the gaps" perspective, claiming that people needed to consider both religion and science because neither could fully explain everything. (Gorsuch and Smith 1983; Lupfer et al. 1996; Preston and Epley 2009). Interestingly, both young adults who reported being very religious and those with little self-reported indicators of religiosity embraced this model. As one Evangelical Protestant who attends religious services once a week or more, reads scriptures a few times per week, has been on four religious missions and sees religion as very important put it, "I think science only goes so far and then comes faith." Similarly, a Jewish young adult who only attends services a few times a year, never reads scriptures and only sees religion as somewhat important claimed, "I think science provides a lot of answers that religion can't, but then religion sort of steps in when science like ends." Here religion and science are not at war because they are both needed to fully understand the world. They both have some truth, and individuals can use each to produce a complete picture of how the world works.

Other young adults reported a somewhat similar perspective with a slight nuance. While still claiming that both were needed to obtain a full truth, these young adults saw this necessity born out of each perspective's flaws. Rather than claiming both were "mostly right" but simply could not explain everything, these young adults claimed a compatibility between the two because both had major deficiencies thereby requiring people to turn to the other to overcome these faults. One young adult claimed religion and science were similar, and not in conflict, because neither could actually be proven true: "Well I think they're similar in the fact that you can never prove anything in science, they're just corollaries, they're theories. Same as religion, you can't prove anything ever happened." Because neither is able to absolutely prove their claims, this young adult, like many others, saw them both as being inherently flawed and thereby similar potential schemas to explain the world.

Another young adult's view encapsulates this perspective when he concluded, I think both sort of extremes of the end are completely wrong. I think people who are in science say "oh, there's no such thing as a God, we're here, this is what's going on." The complete science people just really kind of really sort of really logical people say it's impossible, it's irrational. I think that's wrong. But also I think the people who say "oh, God created this earth and God dic-

tates everything and you must follow his word in order to go to heaven,” I think that’s wrong, too. So, I’d say sort of a middle balance.

This viewpoint again negates a pure warfare model because these young adults are not claiming that these alleged failings are what produce the conflict or even that these limitations mean people should not rely on either. Rather they are contending that because neither can be proven fully correct, people are better off using parts of each.

Origins

In discussing whether or which aspects of religion and science are right (or wrong), a substantial portion of young adults focused on explanations for the origins of the world and evolution. Although the interview prompt in no way directly asked about issues such as evolution, the Big Bang Theory, or creationism, a large number of young adults interpreted the general question about religion and science to pertain directly to these topics. In fact a majority (55%) of respondents, completely unprompted, mentioned one of these issues in their reply. As exemplified by the quote from one respondent: “I mean if you are talking like science, it’s like evolution, is that what you are talking about?”, for many young adults to think about science or religion inherently meant thinking about evolution and the origins of the world.

This equivalence was shared by young adults who saw religion and science as in conflict or as compatible. Several respondents provided somewhat typical answers on either side of the warfare perspective, such as one who saw the two in conflict because, “I don’t want to be related to a monkey that’s horrible. They fling poop. That’s just... I don’t want to sit there and be like, ‘That’s what I was.’” Another respondent, who operated from a conflict perspective but sided with science, likewise answered the question in terms of evolution versus creation: “Ah, you always hear the argument over, ah, Darwinism and, ah, the big bang, creationism, stuff like that. Um, you can’t deny the fact that evolution occurs. That’s impossible from a scientific background.”

Yet the relationship was not so clear cut for many of young adults who discussed the origins of the world and humankind. Young adults often detailed nuanced and complicated ways in which both evolution and a God-centric creation explanation could work. One respondent directly supported “the idea that God created the world with order and purpose and put certain characteristics in it and created it reasonably.” Another addressed this issue even more in-depth, concluding,

people say that evolution proves that God didn’t create the world. And my opinion on it is simply, like why do you think God would create something that couldn’t adapt? You know, it doesn’t say anywhere in the Bible that He created it and it will stay in exactly this form. I think it’s very clear that, both that we adapt and that God would create us to be able to do so. I mean, He’s an intelligent being. So, you know, I think they’re totally compatible.

Several other young adults explained a similar combinatorial view of God creating aspects of the world that then allow for or even required evolution.

The centrality of the origins of the world and evolution to the relationship between religion and science transcended young adults' view on exactly how the two intersected. In fact, using our coding of the responses as generally expressing a sense of conflict or not, there was essentially no difference in the likelihood that a young adult would discuss the origins of the world in their explanation. Whether they see religion and science as at odds or potentially compatible, young adults were equally likely to associate this relationship as being primarily about evolution or how the world began. While a few respondents mentioned other important issues that might create a conflict between religion and science as institutions or schemas (e.g., stem-cell research), many boiled the relationship down to this one fundamental concern.

Accommodation

In the warfare model, highly religious young adults should perceive the truth claims of science as a threat to their understanding of the world and even their identity. In this model, young adults who are less religious should be able to relax dogmatic aspects of religious claims to potentially make room for a collaboration with scientific understandings of the world. But as others have reported based on quantitative analyses (Longest and Smith 2011), we find that young adults coming from a stronger religious perspective are often the ones most likely to see a compatibility with science.

Analyzing the interview responses, we find that this accommodation approach (34%) appears to be a defense not of religion per se, but of themselves as religious individuals who can still be logical, rational and reasonable people. In more direct terms, these religious young adults seem to be protecting themselves against the perceived idea that being religious means being anti-science, thereby making them “backwards” or “stupid.”

The responses that exemplify this perspective were among the most lengthy and detailed among the interviews. We interpret the extent of and nuance in these responses as more evidence that these young adults are trying to make a case for the idea that one can be fully religious and still have a rational, scientific perspective.

An Evangelical Protestant young adult who on all indicators is as religious as one can be—attending religious services once a week or more, attending Sunday School weekly, claiming religion to be extremely important, and reading the Bible daily—explained her perspective on the relationship between religion and science by first noting:

I mean I'm not really like a science person, like I'm not very good with science but from what I know, I think that especially biology really does... that like brings me closer to God, talking about biology, like the intricacies of the human body and the plants and animals and like how they work and how they've been designed. It's so cool. I think science and religion can go hand in hand.

This quote reflects the initial assertion that being highly religious does not necessarily mean that she disregards or dislikes the hard sciences. This respondent then goes on,

You know where, you know the human being's mind, you know God's created it to be so complex and so I think like definitely they go hand in hand. Chemistry, all that stuff, yeah, totally! So I think they help us to realize more what an amazing creator God was. Now, there are issues, I know, like you know Big Bang theory, evolution, all those things that people are like, "Oh, that's you know..." I believe in intelligent design, you know, I pretty much ascribe... pretty much you know ascribe to that theory of I believe... I believe in natural selection and I believe in like evolution.

Here the young adult takes the idea of not being anti-science a step further to claim that she in fact believes in scientific findings related to the origins of the world and evolution. Again she seems to be proclaiming her ability to be highly religious and still believe in the empirical evidence of science—or at least that she is not ignorant of these findings. Finally, she provides one of the more nuanced discussions of scientific research in stating,

I think scientific research is awesome and I think we should keep doing it and I think there's some things we're not supposed to know. You know, I think we are getting a little, you know, obviously with cloning; I'm not okay with that like I'm not okay with us trying to be God and create life. I don't think that's our job but I think it's awesome. They're studying to the point where they're able to do that. I mean like... I think God gave them brilliant minds for a reason and you know, things like discovering cures for diseases, I think God's cool with that.

Only a minority of young adults went into this level of detail or brought up more complicated issues such as cloning. In doing so, this highly religious young adult is proclaiming her knowledge of such topics, maintaining a religious ideological stance against it, while allowing for science's right to conduct this type of research. Not only does this response support our interpretation of such religious young adults' compulsion to defend their intellect, it also contradicts the sense that these young adults are the quickest to conclude a conflict between religion and science. Rather these types of responses reveal that religious young adults tend to have spent more time considering the different dimensions of this relationship and formulated a more complex understanding than other young adults.

Another very religious Evangelical Protestant, again attending services and Sunday School weekly, frequently reading the scriptures and rating religion as extremely important, said something very similar:

Well, growing up in the science background and being a neuroscience major in college you are always facing professors who argue the biggest conflict is evolution and there is a time and place where you can mix the two together right. So you shouldn't go ahead and say "no you shouldn't do this research because of religious reasons." So when you talk about the big ones like – stem cell stuff

like that – I agree you should do those kinds of research... Then when you into evolution in the Bible, the steward of creation, I don't think he snapped his fingers and everything came about, but he could have used evolution to go about it, things do change over time.

This young adult does not simply claim that they are not against science; he actually clearly claims a scientific identity, through his family and current college field of study. From there, however, he provides a balanced idea of what being scientific means by bringing in some aspects of religion. Again, it is notable that this is one of the few cases where a specific issue other than the origins of the world is discussed, while the young adult still takes a definitive stance on believing scientific claims about evolution. These two responses exemplify the effort that many very religious young adults take in proclaiming their ability to be scientific, which they seem to be equating to intelligent, and religious.

Institutional

Another prominent aspect of the connection between religion and science that young adults often discussed (11%) was how the two intersected with educational institutions. Many of the responses would at first appear to support a warfare model, as many young adults discuss the conflict that occurs in determining what can be taught in public schools. These responses, however, rarely point to an actual conflict between religion and science on these matters. Rather they define the conflict as an institutional clash between the government and individual schools or teachers. Most young adults still do not see the conflict between religion and science coming from the properties or claims of the two perspectives, but instead perceive it as stemming from institutional or personal concerns. That is, the conflict is about the way people use the two, not necessarily about the substance of the two perspectives themselves.

Highlighting this institutional perspective, one young adult reported, “My science teacher had to teach evolution like in a certain way just because the government, that's what the government like says.” Importantly, this young adult sees the battle being between their teacher and the government, not the church or religion. The response does not even draw upon religious concerns as the main reason for these constraints, instead pointing to the more abstract institutional concerns of the government. Another young adult had a similar experience and said of it, “I think there's a guy at our school teaching about, a science teacher talking about God or whatever and made the earth and all that, it just came up and dinosaurs and all that stuff, I think he got sued or something like that, kicked out of teaching.” Again the conflict here is resolved by another institution, the legal system. The young adult does not see or think about the actual validity of the claims the teacher was making and whether they are at odds with a scientific perspective, instead focusing only on the institutional clash between the education system and legal issues.

The way that many respondents resolved the issue of how religion and science should operate in education further supports our interpretation that within these discussions of conflicts young adults are not actually claiming that the two are actually at odds. Typically, these young adults would return to the individualistic model

discussed above and conclude that the teacher or students involved found a way to be both scientific and religious. Exemplifying this perspective, one young adult claimed

I really don't think there is a place for religion in schools and so I am strongly against teaching creationism in public schools. To me it is not science. You can't approach it scientifically. Like you can approach Darwin's theory of evolution or other traditionally scientific topics, and so that is kind of where I stand on that. But I mean, I think they can co-exist.

This respondent clearly sees a conflict in terms of how religion should fit into public education, but in terms of the two as perspectives on or explaining the world, they can "co-exist." Moreover, this young adult believes that smart, scientific people can be religious in their own lives. Similarly, another young adult turned to more historic conflicts but with a similar resolution in concluding, "Yeah, because [Galileo] and Newton, and Copernicus, and many, many scientists, you know, Darwin and evolution were saying that they were better scientists because they believe in God." Even when institutions collide on issues around religion and science, there is no reason that individuals cannot create compatibility between the two. Taken together these views, while highlighting an area of conflict, continue to support the overall view among young adults that religion and science can be compatible and that people who really consider the issues will in fact construct them as such.

Discussion

We have used a large sample of in-depth interviews to more thoroughly understand the way in which young adults conceive of and construct the relationship between religion and science. Focusing both on their overall conclusions about this relationship and the way in which they describe their perspectives provides a more holistic view of how young adults understand this relationship.

One of the primary conclusions is that only a minority of young adults approach religion and science from what might be described as an outright warfare or conflict perspective. While a majority of young adults indicate some level of agreement with the idea that religion and science conflict in their responses to a direct survey question, explanations of their actual understanding of this issue reveals that the majority of young adults do not see the relationship in entirely oppositional terms. For most young adults, thinking that religion and science are simply at odds and in constant tension does not make sense. Rather, they have taken an approach that views the two as distinctly different arenas or, even more commonly, one that is able to find some common ground between the two.

Perhaps the main reason most young adults have constructed such a viewpoint is because they do not conceive of the relationship as being about fundamental schemas or institutions. They tend to believe that the relationship between religion and science is an individually relative question that can only be sorted out based on personal beliefs. Very few young adults focus on the ontological or epistemological properties of each field. In so doing, they are able to avoid the inherent differences

that the warfare model proposes. If individuals are free to determine their own perspective on the relationship, then one's own definition of religion and science can relax any potential conflicts to allow for and create an intersection. Many young adults directly claimed that they simply used parts of either religion or science, while disregarding other aspects, to make sense of this relationship in a way that fit their overall understanding of the world.

The individualistic stance many young adults take on this relationship is important because not only does it discount the idea that most see religion and science as being in conflict, but it also limits the impact one's views on this relationship has on separating or dividing people. That is, if the determination of how religion and science are related is simply up to the person, then one's conclusion on the matter would not seem to be a source of conflict between individuals. Thus, not only do the two domains not conflict but young adults have eliminated this relationship as a source of conflict amongst themselves. Young adults often do not perceive an absolute or "correct" way of construing the relationship between religion and science, meaning they are unlikely to see a need to fight to prove their particular understanding as more accurate than someone else's. What might be perceived as a general apathy by young adults towards such seemingly important issues may in fact be more properly seen as an extreme tolerance to the point that it becomes an issue not worthy of extended thought or discussion.

This extreme tolerance, while functional, is nevertheless unlikely to be encouraging to many actors within the institutions of both science and religion. This sort of relativistic take is anathema to many within each institution, both of which often make strong truth claims about human origins. It may be tempting to say that young adults navigate the religion-science issue without alienating either; however, individuals who believe science but tolerate religious explanations do so in defiance of science's pronouncements, and those who believe religious explanations but tolerate scientific ones do so in defiance of some (conservative) religions' teachings. Extreme tolerance is not always compatible with science or religion.

Within this generally relativistic framework there are issues that clearly matter to young adults. Most notably, they are concerned about notions of the origins of the world and evolution. This particular topic was the most pronounced issue within the more general relationship, and the one that has clearly earned the most thought by young adults. Further, many young adults were able to construct unique and dynamic perspectives on how science and religion inform this specific area. Despite this nuance, the fact that they have reduced the entire intersection of religion and science to one particular issue may explain why young adults are not particularly troubled by the potential cognitive challenge this relationship could present. That is, if young adults perceive the relationship between religion and science as only pertaining to the origins of the earth and humans, then it is not a dilemma they likely to have to confront in their daily life.

Still, the depth and nuance in many of these responses highlight the need for qualitative interview data to fully understand people's perceptions. A simple Likert scale question about whether one agrees with evolution or creation, or even some mix of the two, would not fully capture the way in which young adults consider religious and scientific claims on human origins. Yet, we also saw some similar themes

among these responses. Classifying these more complicated themes and trying to understand why certain young adults have particular perspectives is an important avenue for future research.

Next, the relationship between religion and science was not completely battle-free for young adults. Many saw a tension between the two when they fell within the realm of public education. If there is an institutional element to this debate for young adults, it comes from how it plays out within education. Further, for many young adults, their own perspective on the relationship between religion and science was dominated by concerns about school. Many respondents pointed to how instructors, classroom discussions, or news stories about particular classes or schools had directly informed their thinking about religion and science. Although previous analyses has concluded that school or classes have little impact on how young people view this relationship (e.g., Scheitle 2011), their explanations suggest that how instructors are able to or actually discuss these matters has shaped the way in which they understand the relationship. Continuing to pursue how and why some young adults are influenced by this topic in their classroom experiences would be helpful in further determining the eventual perspective that these young people will have as adults.

Finally, and in another contradiction to the typical understanding of this issue, the most religious young adults appear to have given this relationship the most thought and provide some of the most nuanced and complicated perspectives on it. Many religious young adults, although certainly not all, do not jump to the quick and easy formulation that a warfare model would posit. Instead, they often first defend their own ability to be scientific and religious at the same time. In this effort they seem to be doing identity management against a perceived intellectual stigmatization of the very religious. As the educational attainment barrier that particular religious denominations have imposed on its adherents is at least partially waning (Smith and Faris 2005), young people coming from these traditions are being faced with the need to reconcile their religious beliefs with their academic ambitions. Based on these interviews, the answer fits with current studies of academic elites (Ecklund et al. 2011), which show that individuals pursuing higher education are able to reason through their religious beliefs and scientific perspectives to ultimately maintain both. Young adults without a strong religious background may be more likely to default to the standard warfare narrative because they simply do not have to consider this relationship in their daily lives. Systematizing this hypothesis with further qualitative and quantitative data would help understand how the next generation of academic elites will shape this debate.

There are limitations to this study that should be noted. First, these were semi-structured interviews that focused on many topics. The discussion concerning the relationship between religion and science was somewhat brief, meaning that we may have missed some of the nuance and detail in respondents' thoughts on the matter. Still, interviewers were instructed to probe and ask for follow ups, and there were several instances involving multiple such extended conversations on this particular topic. Second, we recognize that our findings pertain specifically to young adults. While we believe this is a valuable age range, there are themes that may be particular to this age group. For example, it is possible that the salience of the interaction

between religion and science within schools fades as people age. Similarly, we do not explore the mechanisms that may have shaped these beliefs nor how they may change over time. For example, respondents with college experience may construct the relationship between religion and science differently, given the exposure to extended science education, than those who do not pursue post-secondary schooling (Longest and Uecker 2018). Our goal, in part, was to provide an initial analyses of the complex understandings young people have of the relationship between religion and science in order to provide a baseline for future studies to investigate the extent to which factors, such as education, may influence where young people land on these themes as well as the stability of their beliefs. Finally, the extent to which young adults have actually considered or contemplated their beliefs on the relationship between religion and science may be in question. That is, one potentially significant “theme” we did not discuss was that of “don’t know/don’t care/don’t think about.” Yet, out of the 214 respondents, fewer than 10 overtly claimed not having any thoughts or opinions on the question about the relationship between religion and science. In fact, only a very small minority (less than 5%) needed an additional probe to elicit a definitive perspective. Thus, it seems as though the vast majority of young adults have given this topic some consideration and therefore fall more appropriately into one of the five identified themes.

Conclusions and Implications

Overall, we find that the construction of the relationship between religion and science for young adults is anything but straightforward and simple. Although a minority do view religion and science as at war with one another, this is not the typical way young adults navigate questions of religion and science. We outlined five themes from our 214 in-depth interviews: (1) Young adults view one’s beliefs about religion and science in highly individualistic ways, (2) young adults view religion and science as complementary in the questions they can answer, (3) religious young adults accommodate scientific knowledge into their religious worldviews, (4) young adults believe religion and science conflict is mostly a question about human origins, and (5) young adults view conflict between religion and science as conflict between two institutions, not epistemological conflict.

The vast majority of young adults provide relatively lengthy and thoughtful responses to open-ended questions about religion and science beliefs. This topic is clearly something they have considered at some point on their pathway to adulthood. To the extent that their views on this relationship are important in shaping their adult trajectories, such as their education or work, further study of why particular groups have formed the views they have and the consequences of these particular views will be an important area of continued research.

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