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## Running Head: LITERATURE REVIEW: ANALYZING THE REASONS

# LITERATURE REVIEW: ANALYZING THE REASONS BEHIND THE LONG-STANDING DEBATE OF EVOLUTION AND RELIGION IN AMERICA

A Thesis Submitted

in Partial Fulfillment

of the Requirements for the Designation

**University Honors** 

Michelle Kathryn Matchell

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Fall 2018

This Study by: Michelle Matchell	
Entitled: Literature Review: Analyzing the Reasons Behind the Long-Standing Debate of	
Evolution and Religion in America	
has been approved as meeting the thesis or project requirement for the Designation University	
Honors.	
Date	Dr. Steve O'Kane, Honors Thesis Advisor, Department of Biology
Date	Dr. Jessica Moon, Director, University Honors Program

#### Introduction

Evolution has been a widely studied and debated topic for centuries. Since the days of Greek philosophy, humans have been curious about the diversity of life and how it arose to what we see today. Interest in evolution flourished during the days of Charles Darwin when he and Alfred Russel Wallace developed the concept of natural selection. Now, evolution is an integral part of many scientific studies, especially genetics, developmental biology, geology, behavior studies and social sciences. According to Muhammad Ashraf, evolution can be considered 'the cornerstone of modern science' (Ashraf, 2016). On what would have been Darwin's 201st birthday, the Huffington Post wrote an article in his honor regarding the importance of evolution in everyday life. They listed the medical implications of evolution such as the development of vaccines and medications. The development of knowledge about diseases in humans and other species can also be attributed to the study of evolution. Other fields that have grown with the integration of evolution are agriculture, forensics, and bioengineering. As reported by the Huffington Post, we have grown our understanding of the connection between humans and other species, the diversity of life, and other natural processes by studying the mechanisms of evolution (Newton, 2011).

Since evolution is incredibly important in the study of life, it is surprising to some in the scientific community that there is such a low rate of acceptance of Evolutionary Theory in America; only about 40 percent of adults in the U.S. accept evolution (Miller, et al. 2015). I have seen evidence of this in my own life as a biology major at the University of Northern Iowa. I was required to take a course called Evolution, Ecology, and the Nature of Science. In this course, we gain insights into the basics of Evolutionary Theory and how it emerged. While I was in the course, I was shocked by the number of fellow students who, even after spending a semester

investigating the evidence supporting evolution, were still quick to discard evolution as false. Most of these students credited their religion as the main reason they did not recognize evolution as scientific fact. In addition, I have been asked, on more than one occasion, how I can be a science major, accept evolution, and still hold the religious values I grew up with. I may not be able to answer that question for some, but when I was told that I needed to pick a topic for my Honors Thesis, it seemed like the perfect opportunity to explore why these people I have encountered, along with millions of other Americans, reject evolution.

#### **Methods**

In order to best understand the debate over evolution in America, characteristics of Protestant Baptists, Buddhism, Roman Catholicism, Islam, and American Judaism were analyzed in detail. These religions were chosen because they best represent the diversity of religion in America. Two articles rank these religions similarly. InterNations (2018) broke the religious population of the United States down in the following way: Christian Protestants 50 percent, Roman Catholics 25 percent, Jews 2.2 percent, Muslims 2.0 percent, and Buddhists 0.9 percent. With similar numbers, Amber Pariona (2018) with the World Atlas, divided the religious population as: Protestants 46.50 percent, Roman Catholics 20.80 percent, Jews 1.90 percent, Muslims 0.90 percent, and Buddhists 0.70 percent of the United States population. Although there is a portion of the Americans, such as atheists and other religious groups, left out of consideration, this study invites the possibility of further research.

Five features of daily life were selected to assist in analyzing the above religions. These aspects were chosen based on priorities of many Americans in the modern age. They are education, politics, family, society, and religiosity. Trends in these features will be evaluated and compared in the interest of discovering what is most influential in swaying an individual's

acceptance of evolution and how or if religion has a role in this. If religion is the most crucial influencing factor, then it would be expected that the followers of each religion would believe in the same manner as the religious officials in their denomination.

This thesis is an in-depth literature review. It begins by looking at each religion's official stance on evolution. It then covers the five features of daily life, education, politics, family, society, and religiosity, as they relate to each religion. Finally, it compares religious adherents' acceptance rates of evolution with their denomination's official teaching and how the components of American life investigated previously affect those acceptance rates. All figures in this analysis were created by me as I compiled statistics throughout my literature review. The body of the text is separated into sections based on the content focus, followed by a discussion of the findings and a general conclusion section.

#### **Literature Review**

#### **Official Religious Sentiments Regarding Evolution**

To begin this analysis, it is first imperative to understand each religion's stance on biological evolution. The teaching authority of the Roman Catholic Church is the Pope and the Magisterium. In 2014, Pope Francis announced that Catholics should no longer view evolution as being in opposition with the Roman Catholic faith. He stated, "When we read about Creation in Genesis, we run the risk of imagining God as a magician, with a magic wand able to do everything. But that is not so" (Schultz, 2014). Officially, Catholics view Natural Selection as a God-created mechanism of evolution (Religious, 2014).

Generally, Buddhism sees no conflict between their religion and the Theory of Biological Evolution. Buddhist officials accept all aspects of evolution presented by the scientific community. Similarly, the Rabbinical Council of America, despite some opposition from some

Jewish people and Rabbis, released a statement in 2005 that declared evolution to be consistent with Jewish teaching (Robinson, 2007).

Protestant Baptists are divided on the subject. While some Baptists reject the idea of evolution, others land stand neutral in this debate. Although they officially reject evolution as a religious teaching, they say that evolution can stand alone as a scientific idea without the involvement the religious doctrine. This viewpoint is confirmed by the Baptism Joint Committee for Religious Liberty (Mohler, 2005).

Islam is a split religion as well. More conservative Islamic sects hold onto the idea of creationism and fully reject biological evolution. Liberal Islamic sects, however, claim that humans were divinely created, but they view evolution as a valid scientific explanation of the world known today (Nyang, 2005).

#### Education

Education was the first facet of American life examined. Many studies have been done to determine if religious upbringing affects the level of education a person achieves. Although these studies included different factors such as familial influence, race, and economic background, they all came to the same consensus as was reported by Public Religion Research Institute (2017) and Pew Forum (2017), two extensive demographic research centers. In general, Jewish people tend to achieve higher levels of education than people in the other religions studied in this paper. Following American Jews are Buddhists, Muslims, Roman Catholics, and Baptists, respectively. A division of scholastic achievement for each religion can be seen in Fig. 1.

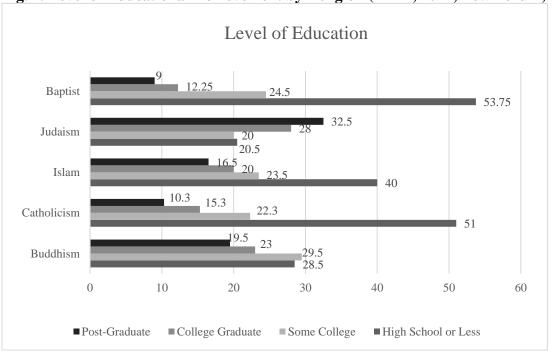


Fig. 1. Level of Educational Achievement by Religion (PRRI, 2017; Pew Forum, 2016)

Educational attainment is relevant when considering acceptance of evolution because it has a strong influence on understanding scientific principles and interpretation of religious texts. In the article "Trends in Scientific Knowledge, Education and Religion", written by Reichardt (2016), results from a questionnaire regarding scientific knowledge, including biological evolution, education, and religious background were reported. Reichardt found that those who had gone through higher levels of education, namely college and beyond, tended to answer more questions correctly regarding basic knowledge of evolution. This deeper understanding of the principles of evolution can be directly attributed to the number of science courses, more specifically biology courses, that one has been exposed to. In addition, higher levels of education can lead to higher epistemological sophistication or the ability to investigate a topic and distinguish opinion from justified belief. These factors combined, level of education, understanding of the nature of science and evolution, and epistemological sophistication, lead to a greater acceptance of evolution (Dunk, et al. 2017).

Higher educational achievement also effects interpretation of religious texts. In a study done by Stroope (2011), this effect is explored. It was found that those who only attended some high school or only graduated from high school tended to have the highest probability of accepting biblical literalism. The probability of acceptance for these groups were 50 to 75 percent and 43 to 73 percent respectively. These probabilities are significant when compared to those of people with bachelor's degrees, which was between 20 and 65 percent.

Conclusions can be drawn about American Judaism, Protestant Baptism, and Catholicism directly from this study since all three religions use the book of Genesis for the 'creation story'. In the book of Genesis, God is said to have created the universe, Earth, and all of Earth's inhabitants in six days. If members of these three religions are taking the words of Genesis literally, then they would not believe that biological evolution occurred. Thus, since Jews have higher levels of educational attainment, it can be concluded that they are less likely to take the Genesis story literally and more likely to accept that evolution has occurred. In accordance with the educational attainment comparison above, Roman Catholics would be more likely to be accepting of evolution than Protestant Baptists, based solely on level of education achieved by religious members. The above-mentioned inferences are backed by the investigation done by Reichardt (2016). He found that people who defined sacred religious texts as an 'Inspired Book of Fables' were more likely to answer more questions correctly about evolution and therefore had higher rates of acceptance of evolution (Reichardt, 2016).

Indirect conclusions about Islamic beliefs can be deduced from Stroope's (2011) study. The primary religious text of the Islamic religion is the Qur'an. In the Qur'an, Allah is said to have instructed the heavens and earth to come together. Allah then created all living things from water. However, humans were considered a special act of creation that occurred separately from

the rest of life (The origins, 2014). If the same trends are seen as with the previous three religions, Muslims would land somewhere in the middle of the road on literal interpretation of religious text as they do with educational achievement.

There are no sacred texts in the Buddhist religion that attempt to explain the creation of the universe, Earth or animals. In part, this is because Buddha himself believed that the origin of life as we know it could not be known. Since there is little in Buddhist texts that addresses evolution or creationism, no conclusions can be drawn about the interpretation of religious text and acceptance of evolution in Buddhism (Religion, 2014).

#### **Society**

For the purposes of this analysis, society will be defined by the way religious members identify themselves within a community and the type of community that they surround themselves with. Authors questioned a sample of Americans to investigate how religiosity affects social identity (Yesseldyk, et al. 2010). The only religious group of interest that was not included in their paper were American Buddhists. Most Muslims claimed that religion was highly important to their social identity and determined who they associated themselves with. Protestants and Catholics reported that religion was relatively important to their social identity. At the bottom of the list were American Jews, who claimed that religion was not imperative to their society identities.

These are important distinctions to keep in mind when reading the paper by Stroope (2011) mentioned earlier. One finding that was also included in his study of biblical interpretation was how social identity affected the probability that one interprets the words of the Bible as inherent words of God. As people reported having more friends in their religious congregation, their probability of acknowledging biblical literalism increased. The opposite trend

was seen for those who reported having a small number of friends in their religious congregation.

Even though people still reported that religion played a role in their social identity and interactions, religion has had a decreasing effect on society as more people become educated. Since more women and ethnic minorities are attending higher levels of education than was accepted in the past, religion has lost some of its importance in everyday life (Stroope, 2011).

#### Religiosity

Religiosity is defined as the quality of being religious or the level of devoutness to one's chosen religion (Religiosity, 2018). As a measure of religiosity, surveys done by Pew Forum (2018) and PRRI (2016) asked followers of American Judaism, American Buddhism, Islam, Roman Catholicism, and Protestant Baptism to assess how important their religion is to their daily lives. The results from these two studies were averaged and the data, as percentages of the population, can be seen in Fig. 2. Protestant Baptists claimed the highest levels of religiosity with 73 percent of the population stating that religion is 'very important' to them. Muslims reported the next highest level of religiosity; 64 percent stated that religion was 'very important' in their lives. After Muslims were Roman Catholics, Buddhists, and then American Jews with percentages of 58, 33, and 26 respectively stating that their religion was 'very important' to their lives.

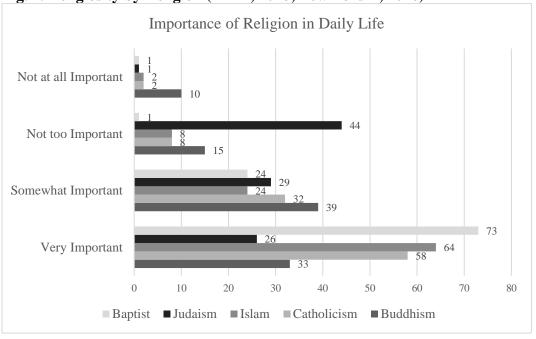


Fig. 2. Religiosity by Religion (PRRI, 2018; Pew Forum, 2016)

Religiosity can affect many facets of people's lives, including how they interact with and view society, as was already reported, their political ideals, families, habits, and beliefs. For this reason, it can be difficult to study how religiosity on its own can sway peoples' acceptance of evolution. However, a paper titled *A Multifactoral Analysis of Acceptance of Evolution* included religiosity as one of the factors considered. The authors were able to isolate this variable from others that they studied and noted that higher levels of religiosity corresponded with lower acceptance of evolution (Dunk, et al. 2017).

#### **Political Ideology**

Next, political ideology is shown to have an impact on the opinions of Americans, including opinions related to scientific debates. The National Science Foundation (2014) ran a large-scale study called Science and Engineering Indicators. They looked at a wide range of topics in science and engineering and how the American public felt about these topics. One matter they considered was biological evolution and the way each political group perceived this

Theory. Before looking at individual political parties, the National Science Foundation first looked at overall acceptance of evolution in America. They discovered that while there was a widespread, generalized understanding of evolution, far less people were likely to accept evolution. Seventy-one percent of people agreed that the Theory of Evolution involves humans evolving from other species. However, only 48 percent of that same population of people said that they accept evolution (Chapter 7, 2014). So, although they had general knowledge of the concept, they were unwilling to believe it.

After taking a closer look at the differences in political parties' views on evolution, these are the statistics that the National Science Foundation (2014) reported. Conservative Republicans showed the lowest levels of acceptance of evolution at 28 percent. Next, only 34 percent of self-reported Conservative Democrats accepted evolution. There was a large gap between Conservative and Liberal Democrats with 66 percent of Liberal Democrats stating that they accept the Theory of Evolution. Finally, Moderate Independents had the highest percentage of acceptance of evolution at 68 percent (Chapter 7, 2014).

Data from Pew Forum (2016) and PRRI (2018) was again used to determine the political viewpoints of the religions studied in this paper. Both resources noted that the majority of Jews claimed to be Liberal Democrats, Buddhists claimed to be Independent, and Muslims claimed to be moderate Democrats. Additionally, the larger portion of both Roman Catholics and Protestant Baptists reported being Conservative Democrats.

If political ideals and acceptance of evolution are correlated as the National Science

Foundation noted, the following associations can be made when only taking in account the

influence of political ideals on acceptance of evolution. Roman Catholics and Protestant Baptists

would have the lowest acceptance rates based on their Conservative Democrat views. Muslims,

claiming to be Moderate Democrats, would have acceptance rates between 34 and 66 percent, depending on whether the individual leans conservative or liberal. The group with the second highest acceptance levels, according to political influence, would be American Jews. Finally, Buddhists would have the highest acceptance rates of evolution at 68 percent, according to their Independent political viewpoints.

#### **Family**

Lastly, the influence of family is diverse among the religions evaluated here. Historically, Judaism has been a religion that stresses the importance of marriage and family ties. Even Jewish people that are not strict in practicing the religious aspects of Judaism, but identify as Jewish, still hold true to Jewish identity and traditions; this includes close family ties. Since Judaism has modernized, especially in America, the strict importance of family has decreased as society moves away from traditional family structures, but the influence of Judaism on family cannot be discounted (Krieger, 2010).

The religion that has stayed most true to historic family values is Islam. Many Islamic families continue to discourage dating before a certain age, and in some instances, arranged marriages are still a prominent part of the religion's culture. These traditions are not typically as strict in America as they are in Islamic countries but are still relevant to discuss here (Carolan, et al. 2000).

Contrastingly, Buddhism does not have specific teachings about family and Buddhists do not push for strong family ties. In fact, Buddhist religious texts or teachings do not have strict guideline about family. In other countries, it is common for people, males especially, to leave their families and go into a monastery. Although this is not common practice in American Buddhism, there is still little impact on family life by the religion (Wilson, 2014).

The Roman Catholic Church has tried to adjust to the changes in family values in modern American society. Priests still teach the traditional family values that are characteristic of the Catholic faith. Nonetheless, they do not scorn those who fall short, through divorce or other circumstances, or choose not to participate in a family life. Roman Catholicism has tried to modernize with the time. Family is still important in the teachings of Catholic faith, but not always in practice (Bradford, et al. 2004).

Similarly, Mainline Protestant Baptists have adapted to a changing society as well. They pride themselves in being tolerant of differing family forms and emphasize the importance of being happy in familial relations instead of feeling forced. For this reason, the Protestant Baptist church has terminated their limitations on remarrying and invites all types of families into the religion (Bradford, et al. 2004).

Donnelly, Kazempour, and Amirshokoohi (2008) ran a study to look at factors that influenced American high schoolers views on evolution. One factor they considered was family influence. They asked students to respond 'true' or 'false' to the following statement: "Most people in my family think evolution is true." Donnelly and her colleagues found that students who had previously expressed that they accept evolution as true were more likely to agree with this statement than students who denied acceptance of evolution. While 22.2 percent of those who did not accept evolution said that their families do think evolution is true, 54.5 percent of students who did accept evolution agreed with the aforementioned statement. In addition to this finding, they discovered that students rejecting evolution more often reported that their families and religious background had a strong influence on their beliefs. Those who accepted evolution did not report being influenced by their families or religion as frequently.

Looking at another study done on college age adults by Paz-y-Miño and Espinosa (2009),

we can evaluate how individuals feel about discussing evolution within their families. In the population that these researchers questioned, 66 percent said that they accept evolution. Of those 66 percent, 14 percent claimed that they do not discuss the concept of evolution with their families because they want to avoid conflict. The other 52 percent stated that they openly express their opinions about evolution, regardless of what their family believes. Additionally, 8 percent of the students questioned claimed that they believe in creationism but will not discuss their beliefs within their families or with others in order to avoid conflict (Paz-y-Miño & Espinosa, 2009). On both ends of the spectrum, both believers in creationism and those that accept evolution, there was a small number of students that said they would not discuss their beliefs with their family. From this, it can be concluded that there is open communication between family members about creationism versus biological evolution, and therefore, family does have some, if only a small amount of, influence on one's beliefs.

#### **Discussion**

To obtain a fair estimate of how adherents of the five religions feel about Biological Evolution and creationism, data from Gallup Polls (2018) and Pew Forum (2015) was analyzed and the average was calculated. People could select one of the four following categories: humans evolved due to natural processes, humans evolved due to god's design, humans evolved but we do not know how, or humans were created and exist as they always have. When the first three categories were evaluated together against the final option Buddhists expressed the highest acceptance of evolution, followed by American Jews, Protestant Baptists, then Muslims, and finally Roman Catholics with the lowest percentage of the population accepting evolution. If we look more closely at the first two options presented, humans evolved through natural processes versus humans evolved through god's design, the results look slightly different. Buddhists and

Jews are most likely to believe that humans evolved due to natural processes. Whereas Catholics and Baptists are tied for the highest percentage of their populations believing that humans evolved due to god's design. Interestingly, the Islamic population is divided between these two selections, with 25 percent of the population relating to the first answer and 25 percent of the population relating to the second. A complete table of the data can be seen below in Fig. 3.

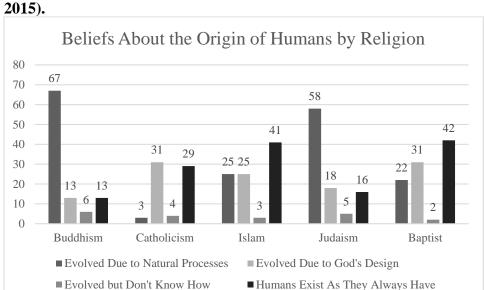


Fig. 3. Ideas on the origin of human beings by religion (Gallop Polls, 2018; Pew Forum, 2015)

So, how do these opinions align with the official teaching authority of each religion?

Generally, Roman Catholic views align with the official teaching of the Catholic Church. Roman Catholicism teaches that humans probably evolved due to God's design. However, there is a portion of Roman Catholics worth mentioning that still hold traditional values and believe that humans exist on Earth as they always have since God created them. Two factors could influence this portion of Catholics to disagree with the official teaching of the Church. In general, Roman Catholics in America tend to have lower levels of education with 51 percent only achieving high school diplomas or less. Since a large population of these religious adherents did not attend upper level education, they could be missing information about biological evolution that would

sway their acceptance. In addition to education, Roman Catholics' conservative Democratic political views could sway a portion of the followers to disagree with the church. However, since the largest portion of Roman Catholics agreed with the Churches' teaching, it is evident that the high religiosity of these religious followers plays one of the most important roles in the evolution versus creationism debate.

Buddhism teaches that there is no conflict between Biological Evolution and the Buddhist religion, and American Buddhists seem to be in agreement with this conclusion. Conclusions from almost every aspect of American life studied in this paper predict that Buddhists have the highest rates of accepting evolution. They are well educated, with the majority of the followers achieving college graduation or post-graduate education. Buddhists tend to be intermediately religious. For many people, Buddhism is at least 'somewhat important' to their everyday lives. Finally, Buddhists tend to identify with the Independent political party, which also has the highest rates of acceptance of evolution. All of these factors would influence Buddhists acceptance of evolution via natural processes.

As mentioned earlier, the official teaching about evolution in the Protestant Baptist church is split. For the most part, the Protestant Baptist church rejects the Theory of Evolution. This split is clearly seen amongst the religion's followers as well. While most Baptists reject evolution and state that humans exist as they always have since God created them, there is a portion of the population that believes evolution could occur due to God's design or even natural processes. It is clear that the high religiosity of the Baptists has an influence on their rejection or acceptance of evolution. Furthermore, their Conservative Democratic political stance, along with their low educational achievement, would persuade a rejection of evolution. Since the official teaching of Protestant Baptist churches are split, it is likely that the congregations believe as their

independent church teaches.

A divide is seen amongst Muslims in the United States as well. Conservative Muslims teach rejection of evolution, and liberal Muslims teach humans could have evolved due to divine design. A large portion, 41 percent, of Muslims believe that humans exist as they always have. This is consistent with conservative Islamic teaching and Muslims lower levels of education achievement. Be that as it may, 25 percent still believe that evolution could occur due to natural processes, inconsistent with the teaching of either liberal or conservative sects, and 25 percent confirm that evolution could have occurred due to divine design. Muslims tend to have a high level of religiosity, and depending on which sect they are a part of, liberal or conservative, their religious institution could sway their ideas about evolution.

Lastly, the teachings of the Jewish authorities confirm that evolution does not hinder

Jewish religion and can therefore be accepted. This belief is also seen in American Jewish

adherents. Fifty-eight percent of America Jews say that they believe evolution occurred due to

natural processes. Not only does this align with the teachings of their religious institution, it is

also reflected in their high degrees of educational attainment and political viewpoints. It could be
that these two facets of life play a bigger role in shaping the Jews acceptance of evolution than
the Jewish church does. Many American Jews reported that religion was not important in their
lives, so they may be generating their ideals from other sources, namely their education.

#### Conclusion

In this literature review, it became clear that two main elements of American life are most influential in governing people's position in the evolution versus creationism dispute. First, religiosity seems to be imperative in whether a follower believes the same as the teaching authority for their particular religion. The greater importance one places on their religion, the

more the religious authority will sway their opinions about evolution. Secondly, the level of education that one obtains seems to be extremely important in their acceptance of evolution.

Over and over it can be seen that religious followers with higher education attainment were more likely to accept evolution as true, sometimes despite their religious authority's stance.

Political ideology can be moderately significant in shaping one's stance in the evolution debate. When someone claims a certain political viewpoint, they tend to only listen to those in the government that hold a position in their chosen political party. Those leaders' views on evolution could potentially sway the way one thinks about evolution and creationism. However, it is unlikely that political ideology would be the only thing influencing someone's thoughts on evolution and probably has the biggest impact when paired with other factors.

Family and society were two facets of American life that were analyzed in this research and did not seem to have a significant impact on affirmation of evolution. Family is somewhat significant in the early stages of determining one's stance of evolution. It is common that people first hear about evolution and creationism from their family members. However, it does not always have a lasting influence. Children can go on to higher education and change their ideals once they are properly informed. It is likely that the biggest impact family has is on introducing a child to the religion in which they group up practicing. Finally, society in and of itself did not seem to be incredibly important in influencing sides of this debate. It appears religion played a bigger role in determining one's place in society than society did on persuading changes in a person's principle beliefs.

It appears religion and science have been at odds for a long time. Many religions have tried to dispute the Theory of Evolution with creationist stories and other unfounded arguments. Now, top world religions and leading first-world countries are moving toward acceptance of

evolution, but Americans are slower to accept this Theory. Since religion and education are the two imperative factors in ascertaining acceptance of evolution, it would help if the two were in agreement in the U.S. in order to increase American recognition of evolution as the valid scientific Theory that it is. For future studies, it would be appropriate to consider the atheist and agnostic population of America, a prominent part of the population that is growing in size and importance.

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