# EFFECT OF ACADEMIC DEGREE AND DISCIPLINE ON RELIGIOUS BELIEFS AND EVOLUTION ACCEPTANCE: SURVEY AT A CHILEAN UNIVERSITY

# by César Marín and Guillermo D'Elía

Affiliation with a scientific area or degree program could affect one's religious beliefs and acceptance of evolution; however, this issue has been poorly studied. Moreover, little information is available regarding Chilean university scientists' views on religion and evolution. This study aims to provide the first documentation of the opinion of scientists at a Chilean University with regard to religion and evolution. This was done by conducting a personal survey of first and last year undergraduate students, graduate students, and faculty. We found that nonreligiosity, as well as acceptance of Darwinian evolution, increased with possession of an advanced degree and this correlation was stronger for individuals who study biology and physics in comparison to those who study chemistry. Although less than 30 percent of undergraduate students are atheists/agnostics, more than 70 percent of faculty members are atheist or agnostic. However, most of the surveyed scientists did not see a conflict between science and religion.

Keywords: academic area; academic degree; atheism; biology; chemistry; Chile; evolution; Latin America; physics; religion

### Background

Distinct scenarios have been suggested to explain the relationship between degree of education and religious beliefs/acceptance of evolution (see for example Johnson 1997 and Zuckerman 2009 for contrasting arguments). Several studies, mostly conducted in Europe and the United States, have shown that university scientists are significantly more likely to be atheists/agnostics than the general public (Leuba 1916; Leuba and Kantor 1917; Larson and Witham 1997; Gross and Simmons 2009). Chile is the one country in Latin America where nonreligious people have been shown

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to be more educated than Catholics and Protestants (Pew Research Center 2014). Several studies conducted in a variety of countries have quantified the acceptance of evolution by the general public (e.g., global samples: Miller, Scott, and Okamoto 2006; Brazil: Datafolha 2010). Most studies of the acceptance of evolution in an academic environment have focused on surveying people with the same academic degree (Dagher and BouJaoude 2005; Jensen et al. 2007; Kampourakis and Zogza 2007; Gregory and Ellis 2009; Kim and Nehm 2011; Pazza, Penteado, and Kavalco 2010; Dias, Willemart, and Marques 2012; Penteado, Kavalco, and Pazza 2012). Stirrat and Cornwell (2013) have shown that among members of the Royal Society of London, biologists are more likely to be atheists/agnostics compared to physicists, who are more likely to have a religious affiliation. Despite the many studies conducted on this topic, not much is known about how religiosity and acceptance of evolution vary among people with different academic backgrounds, nor is it well documented how involvement with different scientific areas might influence religious beliefs and acceptance of evolution.

Between 12 and 25 percent of Chilean people declare themselves to be atheists or agnostics. While some Protestant denominations are becoming more popular, religiosity (Catholicism in particular) is decreasing in popularity in Chile; this, in turn, has been met with a general increase in atheism/agnosticism (Instituto Nacional de Estadísticas de Chile 2012; Corporación Latinobarómetro 2014; Pew Research Center 2014; Pontificia Universidad Católica de Chile 2014). The increase in atheism/agnosticism in Chile began about two decades ago after the return of democracy and the accompanying government secularization and positive economic growth (Corporación Latinobarómetro 2014). Sixty-nine percent of Chileans believe that humans and other living things have evolved over time (but 84 percent of Chileans, according to Pew Research Center [2014], declare that they are affiliated to some religion, which suggests that a high proportion of Chilean theists accept the theory of Darwinian evolution). Meanwhile, 51 percent of Chileans do see a conflict between science and religion (Pew Research Center 2014). However, no study has assessed Chilean academic scientists' opinions regarding religion and evolution; the few studies available surveying academia have been focused on undergraduate students and high school science teachers (Cofré et al. 2013, 2016).

The purpose of this study is to provide a first assessment of the opinion of the Chilean academic scientific community on topics related to religiosity and the theory of Darwinian evolution, focusing on a university from southern Chile. Furthermore, this study seeks to ascertain the opinions of members of different academic areas and with different levels of academic training. It is expected that, on average, biologists accept evolution more frequently than do academic scientists from other disciplines of the natural sciences. It is also expected that acceptance of evolution and religious

disbelief increase with an increase in academic training. To achieve our objectives, we conducted a personal survey at the Facultad de Ciencias (School of Sciences) in the Universidad Austral de Chile (UACh), a competitive research university in Chile. The UACh is a traditional private and liberal university located in Valdivia. The university has no religious affiliation, and according to the QS University Rankings (2015) it is currently ranked 7th in Chile and 43rd in Latin America. The UACh has approximately 13,000 students and 1,000 faculty members. The survey targeted undergraduate and graduate students as well as faculty members. This broad sampling scheme allowed us to gather a first approximation of religiosity and acceptance of evolution of the UACh's scientific community. In addition, given that the UACh is part of a relatively homogenous group of 25 traditional Chilean universities, the so called "Consejo de Rectores de las Universidades Chilenas" (CRUCH; http://www.consejoderectores.cl/web/), which have led Chilean research and graduate education, it is thought that the results presented here could be extrapolated to reflect the reality of other Chilean university communities. However, such generalization should be taken with caution given that some of the traditional Chilean universities have a clear religious affiliation.

# **METHODS**

A personal, anonymous, and printed questionnaire was given to 544 individuals in October 2014. At the time of surveying, all individuals belonged to the Facultad de Ciencias (School of Sciences), Universidad Austral de Chile (Austral University of Chile -UACh), in Valdivia, Chile. The surveved individuals represented the following academic backgrounds: first year undergraduate students from nine different degree programs, fifth (last) year undergraduate students from eight degree programs, graduate students from four MS and five PhD programs, and faculty from six different departments. Information on degree program or department affiliation, sex, and age was asked in the survey. Academic experience was categorized into four classes: first year Bachelor degree students (BS First), fifth year Bachelor degree students (BS Last), graduate students (Gr.), and faculty (Prof.). Each participant was classified as belonging to one of the three following areas of study: biology, chemistry, or physics; here it is important to note that the School of Sciences only has MS and PhD programs in biology.

Nine questions (Q) were asked. The first question (Q-I) was related to religious beliefs; the second question (Q-II) pertained to opinion of the Bible; the third question (Q-III) targeted opinion on human evolution; the last six questions (Q-IV to Q-IX) asked about the degree of agreement with statements about supernatural agents, intelligent design, and the conflict between science and religion.

**Table 1.** Academic Programs at the School of Science (UACh) Segregated by the Main Classes (Degree and Area) Surveyed in the Present Study. Details Pertaining to Average Age (in years), Sex Composition, and Number of Surveyed People Are Given for Each Group

| Degree        | Area      | Number | % Women | Average age | Composition         |  |
|---------------|-----------|--------|---------|-------------|---------------------|--|
| BS First year | Biology   | 107    | 53.27   | 18.92       | Five programs       |  |
| ĺ             | Chemistry | 34     | 35.29   | 17.76       | Two programs        |  |
|               | Physics   | 53     | 35.85   | 18.15       | Two programs        |  |
|               | All       | 194    | 45.13   | 18.50       | Nine programs       |  |
| BS Last year  | Biology   | 75     | 50.67   | 23.16       | Four programs       |  |
| •             | Chemistry | 25     | 64.00   | 21.72       | Two programs        |  |
|               | Physics   | 40     | 40.00   | 22.30       | Two programs        |  |
|               | All       | 140    | 50.00   | 22.66       | Eight programs      |  |
| Graduates     | Biology   | 102    | 54.90   | 28.16       | Five MSs, four PhDs |  |
| Professors    | Biology   | 68     | 27.94   | 43.59       | Three Institutes    |  |
|               | Chemistry | 16     | 31.25   | 42.56       | Two Institutes      |  |
|               | Physics   | 25     | 28.00   | 44.46       | One Institute       |  |
|               | All       | 108    | 28.70   | 43.63       | Six Institutes      |  |

Statistical analysis. Details on the number of people, sex, age, and academic affiliation are given in Table 1. A multinomial logistic regression was performed in R (R Development Core Team 2008) using the function multinom of catdata (Schauberger and Tutz 2014). In a multinomial logistic regression, categorical data (such as area, degree, and sex) as well as lineal data (age) can be included in the regression when the dependent variable is categorical (Tutz 2011). By performing a multinomial logistic regression, the independent effect of categorical variables (i.e., area, degree, and sex, which each have, respectively, three, four, and two options) and lineal data (age, which is a continuous variable) on a categorical dependent variable (i.e., the answers of the survey) could be calculated. Thus, statistically, the multinomial logistic regression was used to calculate the effect, and its statistical significance, of each of the four variables (area, degree, sex, and age) on each of the nine surveyed questions (Q-I to Q-IX).

### RESULTS

Overall, religious disbelief increases with academic experience, and this disbelief is higher among UACh biologists and physicists than among chemists (Figure 1). Although less than 30 percent of all undergraduate students are atheists/agnostics, more than 70 percent of faculty members state that they are atheist or agnostic. In addition, from the first to the fifth year of undergraduate studies, there is a strong increase in the proportion of undergraduate students that declare themselves to be atheists/agnostics

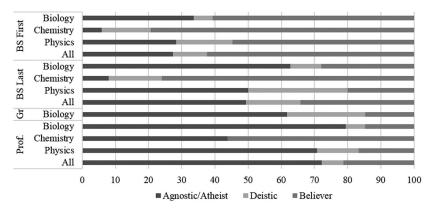
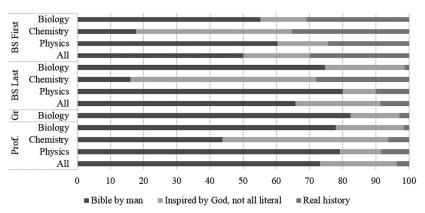


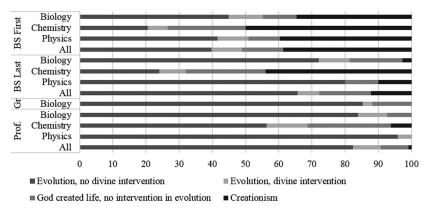
Figure 1. Belief in God by Members of the School of Sciences (UACh). The data are sorted by degree level and area of study (Q-I).



**Figure 2.** Opinion of the Bible by the Members of the School of Sciences (UACh). the data are sorted by degree level and area of study (Q-II).

(Figure 1). A similar pattern was seen regarding opinion of the Bible; the proportion of Bible disbelievers increased with degree level and a less pronounced trend was found among UACh chemists (Figure 2). Furthermore, about 30 percent of first year undergraduate students believe that the Bible represents the real history of humanity, but less than 5 percent of faculty members believe this. A large proportion (up to 55 percent in some cases) of the people surveyed believe that although the Bible is the word inspired by God, the text itself should not be taken literally.

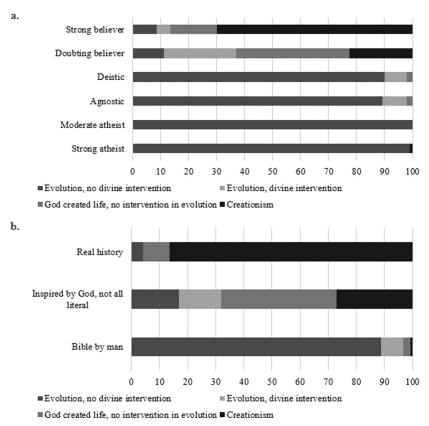
The pattern of degree level and area of discipline as factors that influence religious opinion was also found when the surveyed individuals were questioned about human evolution (Figure 3). Creationism, which in our survey was defined as believing that "God created human beings in



**Figure 3.** Opinion of human evolution by the members of the School of Sciences (UACh). The data are sorted by degree level and area of study (Q-III).

a similar way as we are today, as is explained in the Bible," was commonly accepted (up to 38 percent) among first year undergraduate students in this study, but the proportion of individuals taking this view was strongly reduced for individuals in the last year of their undergraduate program (12 percent held a creationist view by the last year). Moreover, the proportion of graduate students and faculty that indicated that they accept creationism was practically nonexistent (0 percent and <1 percent, respectively; Figure 3). About 40 percent of undergraduate students stated that they take an exclusively Darwinian view of human evolution (i.e., an evolutionary process without divine intervention). On the other hand, the proportion of faculty that subscribed to a Darwinian view of evolution was 82 percent. A large proportion (up to 22 percent in some cases) of both students and faculty accepted evolutionary processes but also believed that God created life, meaning that for them there was an early divine intervention (Figure 3). Results show that most of those that declared themselves to be believers in God and view the Bible as a sacred book also hold a creationist view in human origins (70 percent and up to 86 percent, respectively; Figure 4).

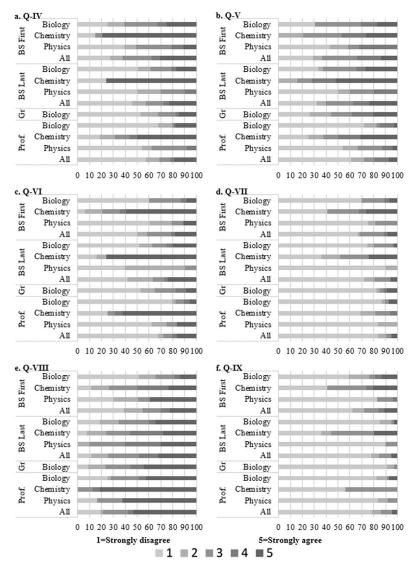
The mentioned pattern, where religious disbelief increases with degree level and is stronger in physics and biology, was detected regarding the other questions asked (Figure 5). More than two-thirds of the professors surveyed do not believe, for example, in a divine intervention in the origin of the universe, in consciousness after death, in intelligent design, nor in miracles (up to 68 percent, 72 percent, 72 percent, and 90 percent, respectively; Figure 5a–d). The proportion of first-year undergraduate students that do not believe in the above stated phenomena is significantly less (about 39 percent, 31 percent, 59 percent, and 70 percent, respectively; Figure 5a–d). Despite this, most surveyed people do think that science and religion



**Figure 4.** Individuals of the School of Sciences (UACh) Who Believe in Religion and Tend to Have a Creationism View of Human Origins: (a) Relationship between Religious Beliefs (Q-I) and Opinion of Human Evolution (Q-III). Most of those who see the Bible as a sacred book that reflects the real history of humanity also have a strong creationism view of human origins, (b) the relationship between opinion of the Bible (Q-II) and opinion of human evolution (Q-III).

deal with different aspects of our understanding of human existence, and indeed, most people do not see any conflict between science and religion. In addition, this view of a lack of conflict between science and religion actually increases with degree level (Figure 5e). Overall, most people surveyed from the School of Sciences favor scientific explanations over religious beliefs (Figure 5f).

The multinomial logistic regression (Table 2) shows that area of specialization and degree level (in that order) are more important in determining one's opinion of religion and evolution than are age and sex. Thus, higher chi-squared values show that, in most cases, academic affiliation (i.e., biology, physics, or chemistry) is more important than level of degree



**Figure 5.** Opinion of the Members of the School of Sciences (UACh) on Different Statements (Questions IV to IX). The data are sorted by degree level and area of study. The statements are as follows: (a) Q-IV: "I believe that God, or some higher power intervened in the origin of the Universe," (b) Q-V: "I believe that when we physically die, our consciousness, or some part of it, survives," (c) Q-VI: "I believe in the existence of miracles," (d) Q-VII: "God designed life as we know it, and this is a valid alternative to the Darwinian theory of evolution, and therefore should be taught as such," (e) Q-VIII: "I think science and religion deal with different aspects of human existence and these entities can co-exist peacefully," and (f) Q-IX: "If a scientific explanation contradicts a religious belief, science is wrong."

| Factor/Question    | I              | II           |            | III            | IV         |
|--------------------|----------------|--------------|------------|----------------|------------|
| Degree             | 39.443***      | 20.37        |            | 15.999*        | 13.946     |
| Area               | $70.419^{***}$ | 58.08        | 4***       | 39.023***      | 115.799*** |
| Age                | 10.542         | 0.33         | 6          | 2.595          | 11.663*    |
| Sex                | 6.562          | 1.92         | 9          | 6.029          | 13.638**   |
| Model pseudo $R^2$ | 0.339          | 0.25         | 8          | 0.316          | 0.342      |
| Factor/Question    | V              | VI           | VII        | VIII           | IX         |
| Degree             | 20.945**       | 23.361**     | 11.291     | 60.885***      | 11.494     |
| Area               | 111.555***     | 154.367***   | 65.931***  | $44.848^{***}$ | 101.286*** |
| Age                | $14.187^{**}$  | 6.500        | 11.557*    | 13.881**       | 8.431      |
| Sex                | 8.922          | $11.067^{*}$ | $12.758^*$ | 6.466          | 8.393      |
| Model pseudo $R^2$ | 0.361          | 0.417        | 0.286      | 0.295          | 0.328      |

**Table 2.** Results of a Multinomial Logistic Regression (Chi-square Values) Showing the Effect of Four Variables on Nine Question about Religion and Evolution

Significance:  ${}^*p < 0.05$ ,  ${}^{**}p < 0.01$ ,  ${}^{***}p < 0.001$ . Pseudo  $R^2$  of Negelkerke. Chi-square values show the effect and significance of each factor in predicting the answers of each question; higher values imply higher effects; for instance, in Q-I just degree and area predict the answers, with area having a higher effect.

(undergraduate, graduate, or faculty). Despite this, the effect of level of degree should not be discarded; the importance of academic affiliation is related with chemists being far different from the group formed by biologists and physicists. Although age and degree level are highly correlated ( $R^2 = 0.67$ ), the multinomial logistic regression allowed us to measure the effect of both variables independently; in some questions, age and sex were also important (both: Q–IV and Q–VII, age: Q–V and Q–VIII, sex: Q–VI).

# Discussion

This is the first report comparing the religious and evolutionary opinions of the Chilean academic community. We found that nonreligiosity and acceptance of biological evolution increased with academic experience. The proportion of fifth-year undergraduate students that have nonreligious beliefs is higher than the proportion of first-year undergraduate students; the former also believe less in a divine intervention in evolution than the latter (Figures 1 and 4). The proportion of faculty members that believe in a divine entity is lower than the proportion of undergraduate students that believe in God. There seems to be a strong effect of academic experience on both secularization and acceptance of evolution; this includes the understanding and consequent acceptance of evolution by UACh science

students and faculty. Although the generality of this pattern remains to be tested, it is in line with the expectation that exposure to science increases one's nonreligiosity and acceptance of evolution. In addition, other reasons could account for the observed pattern, including possible social persuasion to be a nonbeliever, especially among faculty members. This could represent a kind of group imprinting where a shift from a religious community to a highly nonbeliever academic environment could alter personal beliefs. All of these three reasons (exposure to science, group persuasion, and group behavior learning) are not mutually exclusive and could reinforce each other, subsequently resulting in an increase in nonreligiosity.

As is to be expected, most of those (up to 86 percent; Figure 4) that stated that they think that the Bible is a sacred book that represents the real history of humanity also have a creationist view of human origins. Similarly, almost all atheists and agnostics herein surveyed had Darwinian views on evolution. Furthermore, the individuals surveyed that see the Bible being inspired by God but think that the text should not be taken literally are divided regarding their views on human evolution. About half of them believe in creationism whereas the other half states that they believe in evolution (Figure 4). This last assertion, together with the fact that 55 percent of the surveyed people do not take the Bible literally, reflects an important cultural aspect of the still dominant Catholic faith in Chile. From these results it is seen that an exegetic interpretation of the Scriptures (a unified nonliteral hermeneutic corpus of the Bible) persists in Chile. This represents a cultural distinction from the Protestant denominations (mainly Evangelical and Pentecostal) in Chile which tend toward literalism.

Pope John Paul II recalled the First Vatican Ecumenical Council, citing that "even if faith is superior to reason there can never be a true divergence between faith and reason, since the same God who reveals the mysteries and bestows the gift of faith has also placed in the human spirit the light of reason" (Pope John Paul II, *Fides et ratio*, No. 53, citing the First Vatican Ecumenical Council, *Dei Filius*, IV (*DS*, No. 3017)). This quotation speaks of the Catholic tradition, which is seemingly stronger in Latin America than in other places, that faith is not necessarily incompatible with reason. In fact, the Catechism of the Catholic Church states that "the literal sense is the meaning conveyed by the words of Scripture and discovered by exegesis, following the rules of sound interpretation." This cultural background and context could help to explain the above-mentioned results and general trends in Chile (69 percent of the Chilean population accept evolution, with just between 12 percent and 25 percent of the Chilean population being nonreligious).

Cross-cultural studies around the world (e.g., Lynn, Harvey, and Nyborg 2009; Mocan and Pogorelova 2014) have shown the above-mentioned pattern: people with college degrees are less religious than people with only high school degrees, and people with postgraduate degrees are even

less religious than people with only an undergraduate degree. Analyzing data obtained from the European Values Survey, Mocan and Pogorelova (2014) found that one extra year of schooling makes a person 10 percent less probable to declare himself as being religious. This pattern has been detected in several countries, decades, and religions (Lynn et al. 2009). Additionally, in countries where education level is low and social and economic conditions are deficient, higher levels of religious affiliation are found (Lynn et al. 2009). This could support the hypothesis that religion provides social and emotional support in difficult environments (Wilson 2003).

Our data show that UACh chemists tend to be more religious and believe less in evolution than do physicists and biologists. It is possible that the evolutionary and cosmological focuses of biology and physics degree programs, respectively, explain the differences found in acceptance of evolution and the belief in a divine intervention in the origin of the universe. Therefore, a suggestion derived from our results that needs to be tested further is that there could be a bias in the people who decide to study biology and physics; people who decide to study biology and physics might be less religious than the rest of their cohort. It is also possible that people belonging to some religious denominations might prefer or avoid some academic disciplines based on conflicts with their faith (Greeley 1963).

The fact that biology and physics first-year undergraduate students are slightly more likely to be atheists/agnostics (Figure 1) than the average Chilean (as measured by the Pontificia Universidad Católica de Chile 2014) suggests that freshmen of these programs are not a representative sample of Chilean society. This observed bias increases with time of study. In other words, there seems to be a bias toward being less religious for people who decide to study biology and physics, and this bias has been reported elsewhere (Penteado et al. 2012). This observed bias could help to explain why, besides the cosmological and evolutionary emphasis of physics and biology, respectively, with higher education UACh physicists and biologists tend to be less religious.

There are few if any studies comparing views of religion and evolution among biologists, chemists, and physicists. Though Stirrat and Cornwell (2013) found that eminent biologists tend to be less religious than physicists, here we found an unpronounced difference in religiosity (Figure 1) when comparing physicists and biologists of the same academic degree level. Furthermore, it is interesting that in our study, we found that physicists actually supported slightly more a Darwinian view of the evolutionary process than did biologists (Figure 3), although this difference is not significant. In our study, UACh physicists and biologists did not significantly differ in their opinion of evolution and religion, but individuals from these two disciplines form a group apart from chemists. This may be explained knowing that biology tends to have stronger and diverse controversies with

religion (e.g., stem cell research, teaching creationism, cloning), and the cosmological emphasis of physics regarding topics such as the origin of the universe leads most physicists to be as skeptical as biologists regarding religion. Such cosmological or evolutionary emphasis seems to be absent in chemistry.

The pattern that nonreligiosity and acceptance of evolution increases with academic experience is also observed in other disciplines such as physics and chemistry where the curricula do not include courses of evolutionary biology. In addition, the statistical analysis presented here (Table 2) shows than in most cases academic affiliation and experience are better predictors of nonreligiosity than are sex and age. This means that, in our study, religious beliefs and the acceptance of evolution are truly affected by level of education and area of study. Indeed, it would be of interest to test if the pattern observed here is also present when assessing the beliefs of individuals of biological-based professional careers (e.g., physicians, dentists, agronomists, veterinarians) whose degree programs also lack explicit evolutionary biology courses. We hypothesize that the observed pattern would also hold for individuals from these areas of study. In addition, follow-up studies, where the first-year students surveyed in this study would be surveyed again in their fifth year, would give strength to our conclusion; in the fifth year of study, one would expect these students to be less religious and to have a better understanding and acceptance of evolution.

Most of the individuals surveyed believe that science and religion deal with different aspects of human existence, and because of that, these individuals do not see any conflict between science and religion. We found that there is an increase in individuals believing that science and religion are different entities according to academic experience (Figure 5e). In fact, of those who believe that science and religion deal with different aspects, up to 60 percent are theists or deistic, and of particular interest is the fact that 98 percent of the professors who declare that there is no conflict between science and religion are theists/deistic. Most surveyed people (83 percent) favor a scientific explanation over a religious explanation (Figure 5f). Although an important proportion of academic scientists and science students are religious, most of them still favor scientific explanations for natural phenomena. Thus, religion seems to be more related to spiritual and mental processes than to explaining natural phenomena. This is in line with recent findings that show that religious beliefs are more related to social membership, group roles, or even group conflict, than to factual views of the world (Brañas-Garza, Espín, and Neuman 2014; Neuberg et al. 2014). Thus, it is plausible that university scientists that believe in religion are inclined to belong to a religious organization due to the social component of religion. Recently, it has been suggested (Norenzayan and Gervais 2013) that religious disbelief is more recent, in a historical context, than

religious belief. In any case, an important next step is to understand how religious scientists merge their beliefs and their work. Regarding this fact, a possible caveat of our study involves question Q-VIII, which does not include all possible interactions between science activity and religious belief. People could agree that "science and religion deal with different aspects" but disagree with the assertion that they "can co-exist peacefully," or vice versa. Therefore, in this regard our data interpretation should be taken with caution.

Evolution is poorly incorporated into the Chilean public education system (Medel 2008; Camus 2009; Tamayo and González 2010; Veloso and Spotorno 2012). Although evolution is officially assigned in the middle school biology curriculum of Chile (Camus 2009), in practice it is almost never incorporated in classwork (Veloso and Spotorno 2012). Over the twentieth century, there has been a strong dispute between evolutionary and anti-evolutionary views of Chilean secondary education. The fact that teaching evolution has not been popular in past decades (Tamayo and González 2010) could explain why even Chilean biology teachers have mistaken evolutionary concepts (Cofré et al. 2013, 2016). This is reflected in our survey, where a high proportion of first-year undergraduate students hold creationist views of human origins (Figure 2). The proportion of individuals holding creationist views decreases, or even disappears, with academic experience. Although at present Chile has little to no creationist propaganda such as that seen in other countries of the region (e.g., Brazil: Cornish-Bowden and Cárdenas 2007, Pazza et al. 2010; Penteado et al. 2012), Chile is not immune to this movement (Medel 2008).

The study herein presented was performed at a single school of a single university in southern Chile. As with any other study, our findings cannot be extrapolated to areas that were not sampled. The large number of people surveyed (up to 90 percent of all first and last year undergraduate students, up to 70 percent of all graduate students, and up to 80 percent of faculty) and the fact that we targeted different degree areas gives us a good indication of the opinions of religion and science at the UACh. Additional surveys in other schools of the UACh as well as surveys at other Chilean universities will allow us to test the generality of the pattern here uncovered. From this, stronger conclusions can be made about not only the opinions of the scientific community of Chile but also about the opinions of Chilean society at large. Similarly, the use of open-ended questions in surveys has provided a great deal of information about the relationship between religious beliefs and acceptance of evolution (Dagher and BouJaoude 1997; Hokayem and BouJaoude 2008; Winslow, Staver, and Scharmann 2011).

University scientists at the UACh are more secular than the rest of Chilean society, which is a pattern also seen in other countries (Leuba 1916; Leuba and Kantor 1917; Larson and Witham 1997, 1998; Gross

and Simmons 2009; Stirrat and Cornwell 2013). Academic affiliation and experience have an important effect on religious disbelief and acceptance of evolution by academic scientists and science students at the UACh. UACh biologists and physicists are more nonreligious and are more accepting of evolution than are chemists. Most UACh scientists and science students do not see any conflict between science and religion. It could be argued that education, and specifically scientific background, has a clear effect on one's belief system and perception of the world.

# Conclusions

This study shows that area of scientific specialization and academic degree have a major effect on religious beliefs and an individual's opinion of evolution. The reason for the pronounced differences between the subject areas is not determined, but discussion regarding this provides hypotheses that might be tested in the future. Most university scientists do not see a conflict between science and religion.

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