



TEACHING OF CREATIONISM: ANALYZING THE OPINIONS OF A SAMPLE OF BRAZILIANS

Isabela Maria Silva Leão

University Center of Formiga, Brazil

Hesley Machado Silva

University Center of Formiga, Brazil

University Center of Itaúna, Brazil

Elaine Sandra Nicolini Nabuco De Araujo

University of São Paulo, Brazil

In order to assess the opinion of citizens in the region of Minas Gerais, Brazil, on the teaching of Creationism in schools at the expense of Evolutionism, it was proposed the question (in Likert scale format): “*About the idea that science classes should only address Creationism, the idea that God created all living beings and they have not changed since then, you...*”. Religion and education were the variables used in the analysis and discussion of the responses. The variable religion proved to be significant. Thus, among the Gnostics, evangelicals that agreed with the statement outnumber Catholics. In contrast, atheists generally disagreed with the statement. Regarding education, it was observed that even in elementary school the tendency of the respondents is to agree with the question. This may be related to contact with the evolution theme that is approached from high school. However, respondents with higher education tended to disagree with the statement. These data are important when considering the recent growth in the number of evangelicals in Brazil, as there are concerns about possible interventions in the school curriculum, to encourage the teaching of Creationism in Science and Biology classes.

Keywords: Education, Creationism, Religion, Evolutionism.

Introduction

The influence of religion in the teaching of biological evolution is the subject of discussion and several authors of a research subject, such as: SILVA *et al.*, 2013; ROSA, 2002; CURY, 2014; BIZZO, 1991; GOEDERT, 2006; OLIVEIRA, 2012. controversy related studies involving evolutionism and creationism are mainly developed in the United States (DA SILVA; ANDRADE, 2015). According Tidon and Vieira (2009), this occurs due to the presence of several radical creationist groups mainly formed by evangelicals, who make a literal interpretation of the Bible and are against the evolutionism, including in schools. An important event occurred in 1925 in the state of Tennessee, USA, when a teacher was tried

for having taught evolutionism, because of the prohibition of teaching this theory in American schools in 1920 (Razera, 2009). In the face of such conflicts have also been detected in other parts of the world the interest in the subject has been expanded. In 2009 it was developed by Theos and Faraday institutes UK research Rescuing Darwin in the year in which it celebrated the 200th anniversary of scientist Charles Darwin and the 150th anniversary of the publication of his best-known book, *The Origin of Species* (SPENCER ; ALEXANDER, 2009). The research was spatial area the UK region and aimed to realize the vision of the British population on issues that permeate the Darwinian evolutionary theory.

Authors such as Oro (2008), indicate that conflicts involving creationism and evolutionism also occur in Latin America, in which stand out as Brazilian individuals who own the sharpest creationist ideas (NUMBERS, 2006). In Brazil, as pointed out by Cunha (2009), despite the presence of secularism in the Constitution, it is remarkable the influence of religions in situations that only the state should act. An important event took place in the state of Rio de Janeiro with the creation of the law 3459 in 2000, which provided the confessional teaching in schools (ABRANTES; ALMEIDA, 2006). Another recent phenomenon occurred in 2014 in Brazil, where one of the deputies, pastor Marcos Feliciano, proposed a bill (PL8099 / 2014) which requires the implementation of the teaching of creationism in all Brazilian schools, both in public and in private.

According to Vieira and Falcon (2012), it can identify the different ways that religion interferes with the teaching of evolution. To Sepúlveda and El-Hani (2004) religious beliefs can interfere with scientific knowledge in two ways: when the individual refuses to science in a certain way, given the dogmas of their religion and their beliefs when it incorporates the concepts of science. This integration between creationism and evolutionism can be disadvantageous and worrying. An example occurs between supporters of the hypothesis of intelligent design, noted by the author Michael J. Behe in his book *Darwin's Black Box*, which mentions that due to the complexity of many cells becomes impossible to explain the size of this “perfection” through clarification of random mutation (BEHE, 1997). In some cases, the individual suits both biological evolution as religious dogmas, that is so independent fuses the field of science and religion (Coutinho *et al.* 2014). According Eder *et al.* (2010), it can see, both young and adults, peaceful coexistence between the two. There are still those who seek scientific evidence proving religious theories, in order to make them true (Cury, 2004).

Many scientists suppress religion as well as religious suppress science due to lack of knowledge regarding the real sense that both fields have (CURY, 2004). Authors like Mahner and Bunge (1996), believe that science and religion are irreconcilable strands. Cobern (1994) points out that students have difficulty in reconciling forward religiosity of evolutionary theory often the student already stands precipitously on the subject of biological evolution. According to Vieira and Falcon (2012), studies indicate that many teachers are afraid to teach evolutionary theory, because in this way would be rejecting the existence of God. Another issue raised by Silva (2015) relates to the way the Brazilian school curriculum presents the topic of biological evolution. The author cites the PCNs (National Curriculum Parameters), instructions that help educators teach their discipline, depict the evolution across the board, although they bounce the relevance of the subject. From these considerations we can highlight the importance of to investigate how relevant people in Brazil consider the teaching of evolutionary theory.

For authors such as Almeida and Falcão (2005), biological evolution is considered a transverse axis, within the biological sciences, which unites several threads that compose it, without her existence, each subject would be independent and without connections that support their learning. So there is the understanding of diverse biological content, it becomes essential to understand the evolution. According to Reis *et al.* (2009) is the responsibility of the teacher to present evolutionary theory to students in a clear way, thus avoiding possible misunderstandings. To Silva (2015) it is important that the enrichment of evolutionism topic in Biology courses in Brazil. So will graduate student teachers recognize the importance of biological evolution in science classes / biology and teaches you to know it so that the student can understand without interference of religion.

When students come into contact with evolutionary theory in the classes of science and biology, you can see a conflict between the views of students on the theme due to prior knowledge, especially in relation to their religion and family culture (SEPÚLVEDA; EL- HANI. 2004). One way of worldview

that interferes with the acceptance of the subject of biological evolution relates to the way in which students follow religious doctrines, being liberal or fundamentalist way. To Sepúlveda and El-Hani (2004) the level of radicalism in religion is connected with the time when students begin their religious education. Another point raised by these authors is on the way/ quality with which the scientific issues were dealt with in the school years of students from elementary school to higher education. As exemplified by Bishop and Anderson (1990) by the results from their research showed that students who are not creationists, which are based on Darwin's theory can not explain the evolutionary process. Therefore, in places where the teaching of science should be prevalent, as in school, it is important not to deal with religious issues such as creationism because students must live and participate only issues related to science (MEYER; EL- HANI, 2013).

Rescuing Darwin Research conducted in the UK pointed out that many British advocate intelligent design and creationism instead of evolutionary theory (SPENCER; ALEXANDER, 2009). To Colombo (2009), creationists have little power in Brazil, and because of this, the search results Rescuing Darwin, made between Brazilians would be different in relation to the British study. Thus, we sought in this study, conduct a similar survey in Brazil in order to analyze and compare the data obtained.

Methodology

This research has quantitative character, making it more accurate and reduces the occurrence of possible errors in their results (DALFOVO; LANA; SILVEIRA, 2008). In this investigation a questionnaire was used as data collection instrument. This consists of eleven multiple-choice questions (Table 1), with the first four translated the British named search Rescuing Darwin (COLOMBO, 2009). The others were prepared by proponents of Brazilian research. The instrument also contains an open question.

1. Intelligent design, the idea that evolution alone is not enough to explain the complex structures of some living things, so the intervention of a designer is needed at key stages.	a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know
2. The theistic evolutionism, the idea that evolution is the means that God used for the creation of all living things on earth.	a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know
3. The atheistic evolution, the idea that evolution makes belief in God unnecessary and absurd.	a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know
4. Young Earth Creationism, the idea that God created the world sometime in the last 10,000 years.	a) I totally agree b) I partially agree

	<p>c) I partially disagree d) I totally disagree e) I don't know</p>
<p>5. The thought of Darwin, the idea that humans evolved by a process of evolution which removes any need for God.</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>6. On the idea that science classes should only address creationism, the idea that God created all living beings and they have not changed since then.</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>7. On the proposal that science classes should only address how the origin of species and the evolution in the vision of Darwin's theory.</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>8. About a suggestion that science classes should give the same value and use the same time to teach creationism and the theory of evolution.</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>9. Science and religion can have a peaceful coexistence, even in an environment where ideas are so contrary as biological evolution and creationism.</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>10. Some people argue that the teaching of evolution can be beneficial for the scientific development of mankind, and eliminate it would be harmful</p>	<p>a) I totally agree b) I partially agree c) I partially disagree d) I totally disagree e) I don't know</p>
<p>11. It is impossible to believe in biological evolution and at the same time believe in</p>	<p>a) I totally agree</p>

God.	b) I partially agree c) I partially disagree d) I totally disagree e) I don't know
12. What is your opinion about the teaching of evolution and creationism in schools? How would you prefer that your child be educated regarding this issue?	(Open question)

The presentation of the answers respondents used the Likert scale model, also used by the British researchers. This scale has the objective to classify the degree of agreement and disagreement of the respondents, moreover, excludes the simplicity of the “yes” and “no.”

The survey was conducted in the municipality of Ant and some surrounding towns, state of Minas Gerais, Brazil, also reaching the metropolitan region of Belo Horizonte. There was the participation of the course of Biological Sciences Center University of Formiga-MG and the University of Itaúna-MG students at the time of the interview, in order to make it more comprehensive sample. The questionnaire was administered to three hundred and ninety adults without criterion of choice, classifying the sample as “random Simple”, that is, each individual has the same chance of being selected. According to Freitas *et al.* (2000), so that the research can get results close to reality, it is important that the sample is comprised of over one hundred individuals.

Data were analyzed taking into account the religion variables and grade level of each subject. Respondents are mostly theists. With a percentage of 76.9% Catholics, Evangelicals 5.9%, 5.1% Spiritualists and other religions 2.8%. Atheists find themselves outnumbered by 2.1% and 7.2% without religion set. Regarding education, it obtains 1.6% primary education, 10.2% elementary school, 27.4% high school, 27.2% higher education and 33.7% Incomplete Higher Education Full (Silva et al. 2013).

In order to analyze whether there are statistically significant differences between the results obtained we used the chi-square test (χ^2). This test analyzes hypotheses, which seeks to know whether the observed result suffered any deviation from the expected result for a particular event. That is, identify the variables religion and schooling interfere with the response of the interviewee before the mentioned statements. A 0.05 significance level was set.

This study involves the assessment of one of the questions in the questionnaire “Rescuing Darwin”. The selected question was the number six, which asks: “*On the idea that science classes should only address creationism, the idea that God created all living beings and they have not changed since then, you ...* “. This was one of the issues raised by Brazilian researchers, not part of the original English questionnaire. Given this statement, follow the possible answers to each interviewee can choose from: “Certainly True”, “probably true”, “certainly false,” “probably false,” “do not know”. This statement seeks to understand the views of the sample with respect to the exclusion of evolutionary theory education in schools and the replacement of at creationism. According to Rosana Tidon and Eli Vieira (2009), the United States of presents creationists have resistance on the evolution of education and with it the teaching of this subject in school may suffer. Thus, we intend to evaluate the situation in this Brazilian sample, analyzing the perception of respondents regarding the teaching of creationism instead of evolution.

Results and Discussion

It is observed in FIG. 1 the total percentage of affirmative answers regarding the choice of the questionnaire Rescuing Darwin formulated by Brazilian researchers. To note that 74% of the sample

refutes the assertion proposal and only 26% believe that science classes should only address creationism. Thus, most of the sample does not consider it feasible proposition pointed in question. Comparing these results with British research, it is noted that this sample there is no prevalence of creationist view with regard to the teaching of same instead of evolutionary theory, unlike individuals who participated in the study in the United Kingdom because a much of the study group does not agree with the idea of joining only creationist concepts in school, stressing that it was not asked the same question in the original British survey. This data would then be under the assumption indicated by Colombo (2009), citing a study done with Brazilians would have a different result because creationists possess little influence in Brazil. However, noticeable similarities of thought on biological evolution between Brazilian and British individuals through other studies developed in Brazil using the same methodology. These studies showed that there is still a greater adherence to creationism among Brazilian investigated. It may notice this phenomenon when comparing research by Costa *et al.* (2009) with Spencer & Alexander (2009), where both point out that most of his respondents believe that there is the work of an intelligent designer in the changes suffered by living beings the right time. Much of the American public school teachers interviewed in one study, believes that the evolutionary processes were guided by a divine agent (BERKMAN *et al.*, 2008). In an analysis by Greene (1990), it was noticeable among students views on evolution based on ancient scientists. The data found by Silva *et al.* (2014) in Brazil showed a denial of Darwinism relative to creationism with steeper rejection than in British research and Silva *et al.* (2015) found that there are important acceptance of creationism Young Earth, the creationist version more radical, the Brazilian population. So using the same questionnaire applied in this study the works of Silva *et al.* (2014) and Silva *et al.* (2015) pointed out that Brazil has greater affinity for creationism than the UK, but through this work was noticed that despite this high affinity, the sample of Brazilians do not agree with the teaching of creationism instead of evolution.

The overall results of Brazilian sample are shown in FIG. 1. The graph shows the great rejection of the proposal of the question examined in the survey.

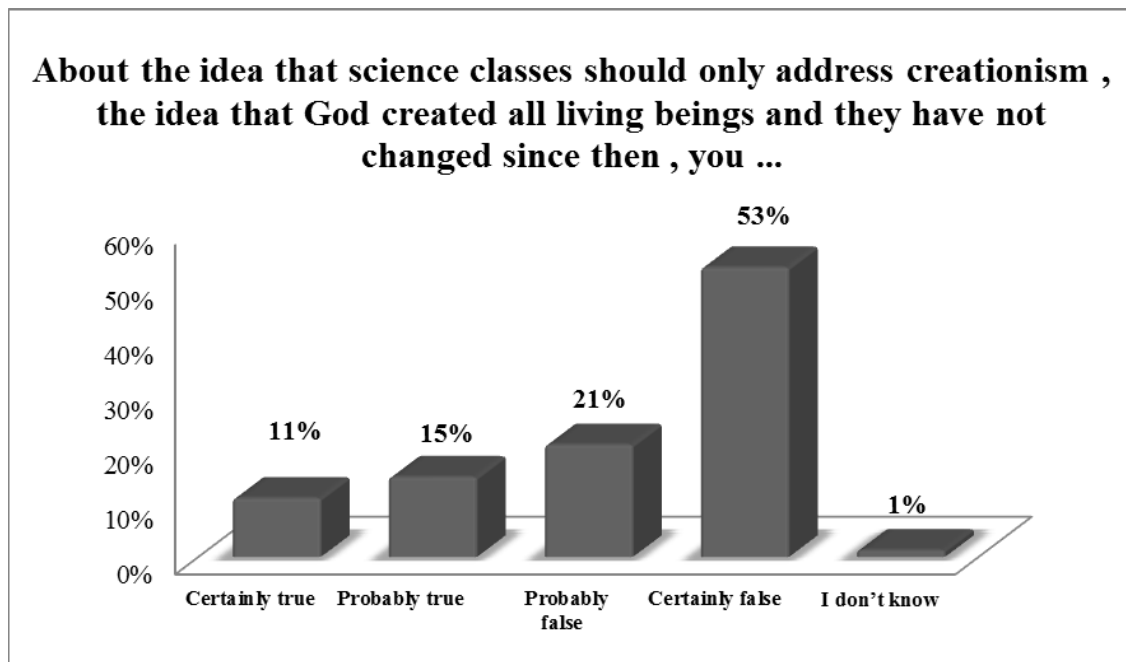


Figure 1. Total Percentage.
Source: Survey data (2015).

According to the education of each interviewee, shown in FIG.2, linking it with the idea that science classes should present only creationist concepts, it is observed that there was an increase in the affirmative rejection percentage as the level school grows, mainly from the high school. Individuals with average schooling on, believe, for the most part, that the teaching of evolutionary theory should not be replaced by creationism. This question can be justified through this curriculum in high school, which has the theme of biological evolution more forcefully compared to primary education, allowing the contact of students with the theme. A study by Porto (2010), shows that one of the biggest problems that high school suffer in relation to the evolution of content, is the reduced time classes who abort theme. Therefore, it is essential to make this a timely manner and that there is an improvement in the quality of the evolution of the theme of the bargain in order to do it enough so that students can understand and assimilate the knowledge on the subject.

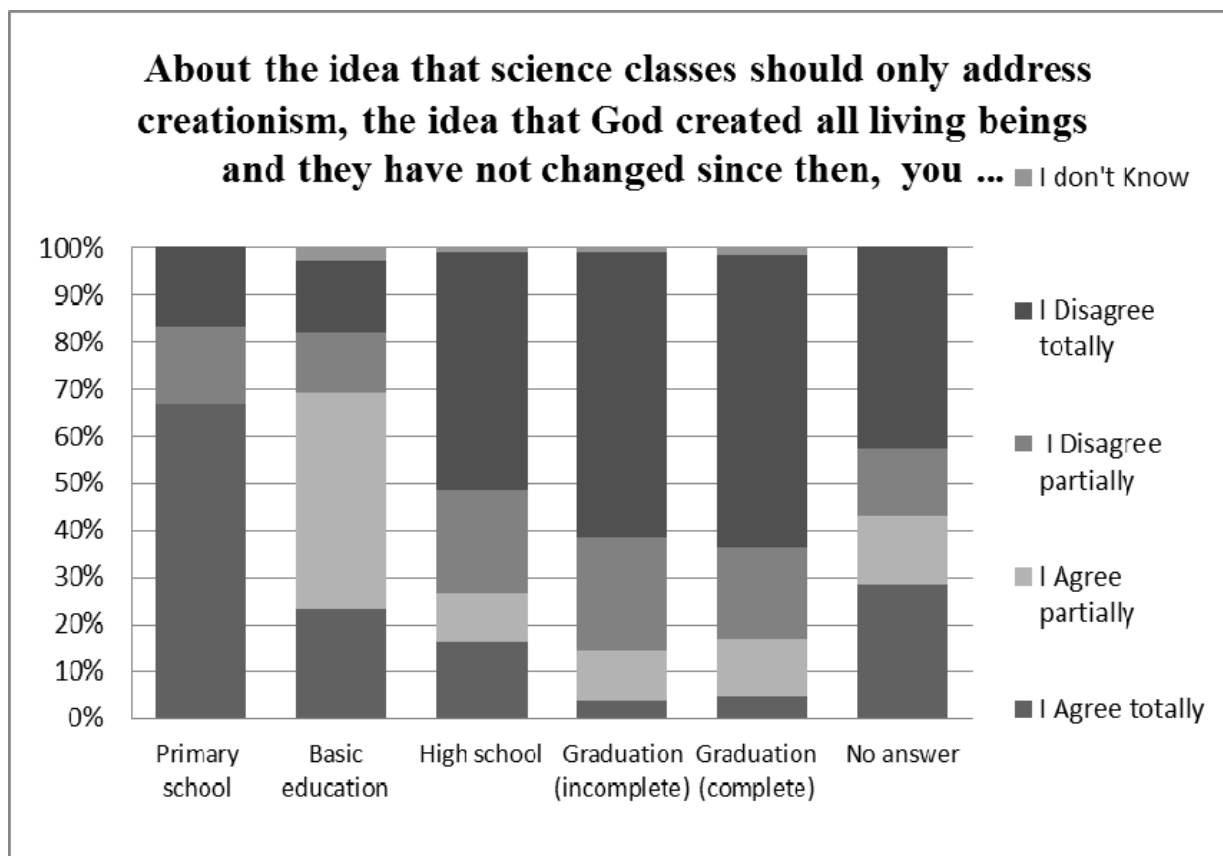


Figure 2. Variable schooling.
 Source: Survey data (2015).

The percentage of agreement between interviews with Primary and elementary schooling is high, more than half of this sample has creationist position (about 60% between these two grade levels). This result may be related to the lack of scientific knowledge present in these individuals because, as quoted by Silva *et al.* (2011), it is in high school that students acquire greater contact with the subject of evolution, even though it may be superficially. Rocha (2012), cites the evolution of content contained in the teaching of elementary school books is far from the reality of the students. In a survey conducted by Oliveira (2009), primary school students have greater ease in understanding the evolution when they can perceive

and analyze the theory by means of fossils shows the existence of common ancestry, but as their studies relate to issues surrounding the origin of man and life, the tendency of students is to oppose the issues. Another argument which justifies the lack of knowledge of students of basic education, it is pointed in a study by Araujo *et al.* (2009), citing that elementary school teachers are influenced by their beliefs and values revealing an affinity with creationism, so it is not possible to say that they address the issue of biological evolution in their classes, and if address not known whether the manner in which this occurs is correct due to religious interference.

With regard to higher education, a study by Carvalho *et al.* (2009), with undergraduate students of biological sciences courses, philosophy, physics, geography, history and chemistry, it was observed that most students accepted evolutionary theory without interference from their religiosity. But the authors point out that despite these results, it is not possible to identify whether they agree with the creationist teaching in schools. Beyond religion, another will have an effect in the know scientific by Topic, Carneiro (2004) points out a problem that relates to the incorrect manner in which undergraduates and graduates understand the evolution, many teachers and students understand the evolutionary processes based on the theory Lamarck.

Although there is a lower percentage number of the question referred acceptance from high school, it emphasizes the importance of encouraging teachers to foster the teaching of evolution. For, as mentioned, creationist conceptions of students about scientific knowledge, may be related to the way teachers teach content. Research by Goedert (2004) exemplifies this fact, this research teachers report that the way the evolution of discipline was administered during the period of his graduation was incorrect, therefore, were not related to the rest of the course topics and were not presented in context.

Watching the religion variable graph in relation to the answers presented, FIG. 3, you can see wider acceptance among evangelicals, comparing with others. About 60% of them think that the teaching of creationism should be unique in the lessons of Sciences / Biology. According to Machado & Mariz (2004), the evangelical population grows increasingly in Brazil. As some aspects of this Church are radical interpretation of the Bible, therefore it is feared that due to this increase, the issue of education in school is harmed by the influence of religiosity. It is noteworthy that the deputy cited in the text, which proposed the teaching of creationism in public and private schools in Brazil is pastor and representative of this religion. In a study by Mota (2013), the followers of evangelical religion have the greatest difficulty accepting the origin of life, compared to other contents that are part of the evolution. Alters and Alters (2001) mentions that religion, more precisely acceptance of creationism, is not necessarily the only reason that interferes with the individual to reject evolution

Despite the evangelical growth, the predominant religion is still Catholic. In this sample, 200 individuals belong to this group. Thus, there is greater flexibility in relation to them, for 23% agree with the statement, significantly lower number in relation to the evangelical religion. A study by Madeira (2007), shows that the group of Catholic inserted in their research, students of the third year of high school, do not reject evolution, accept the theory without a major clash between their dogmas and science. The same author mentions that Catholics are more easy to accept the origin of man through common ancestry. For followers of the Catholic Church, the idea of how the world was created does not seem to come into opposition with the concepts treated in evolution because this theory does not bother to explain the beginning of life (MADEIRA, 2007).

The percentages present between the spiritualist religion are similar to Catholic. These are also considered groups with flexible positions and is the third religion that has more representatives in Brazil, as shown in a study by IBOPE (2004). These data confirm what was predicted by Colombo (2009), in which spiritualists have greater tolerance towards issues involving biological evolution, but this tolerance was presented in relation to the teaching of evolution in relation to the teaching of creationism, this is not It was detected in the work by Silva *et al.* (2014) and Silva *et al.* (2015) using the same survey instrument on the acceptance of Darwinian evolutionism and creationism Young Earth.

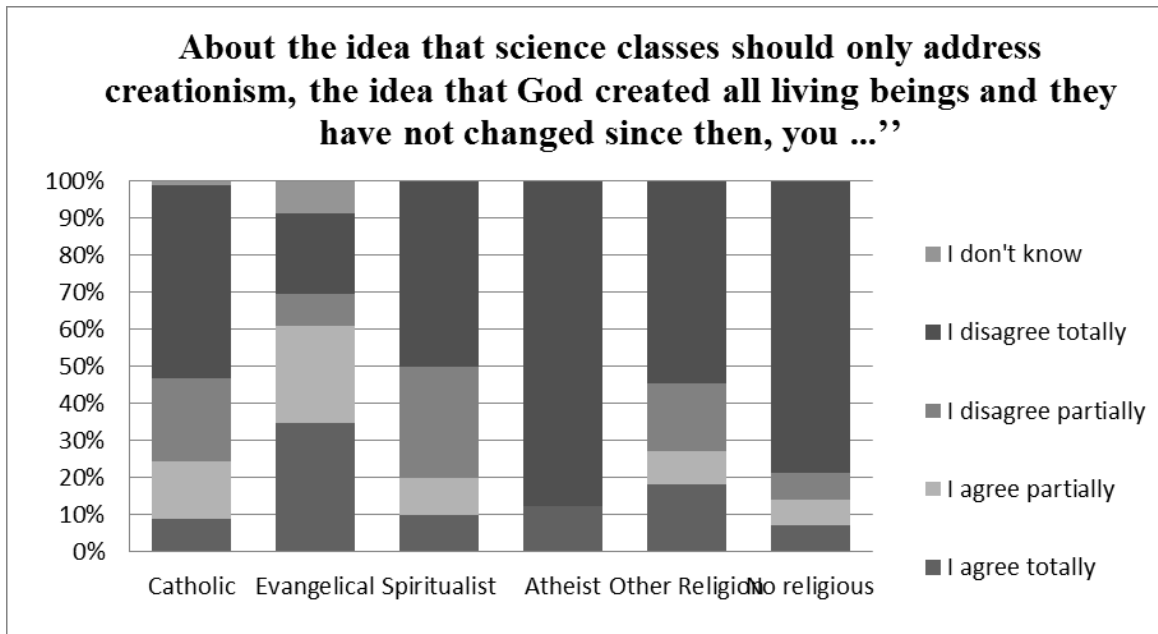


Figure 3. Variable religion.
 Source: Survey data (2015).

Atheists, as expected, largely disagree with the statement. To Schönemann (2009), atheists do not believe that there is a supernatural agent who acted on the creations. They consider that scientific theories are the best explanations and the ones that can be checked and changed if new evidence. In this sample, this group is among the minority, a total of eight respondents. Only one respondent atheist agreed with the statement, it is believed that the respondent has committed a mistake by opting for alternative, as this answer contradicts what is proposed by atheism. However, data provided by the IBGE 2010 indicate that there is a growing number of individuals who claim no religion, can be atheists and agnostics. An example of atheistic position of great influence in Brazil is that of Richard Dawkins, a radical atheist scientist who in his literary works (DAWKINS, 2007; DAWKINS, 2001) emphasizes the idea that evolutionary events are the only explanation for the diversity of world. Repeatedly the author denies the existence of God, showing the trend of atheists deny the religious dogmas and therefore are against the exclusive teaching of creationism in class Science / Biology.

According to the chi-square test, it was observed that religion and education level influence the response of respondents ($p > 0.05$). This confirms the results obtained in the study (Table 2 and Table 3).

Table 2. Chi-square test in relation to religion, with a significance level of 5% and degree of freedom 20

Sample	I agree totally	I agree partially	I disagree partially	I disagree totally	I don't know	Total
Catholic	27	46	68	156	3	300
χ^2_{partial}	0,871978022	0,105802969	0,678461538	0,038237491	0,186153846	
Evangelical	8	6	2	5	2	23
χ^2_{partial}	12,31543239	2,070920613	1,565774805	4,206548257	9,860089186	
Spiritualist	2	2	6	10	0	20
χ^2_{partial}	0,010989011	0,291497976	0,877564103	0,030121982	0,256410256	
Atheist	1	0	0	7	0	8
χ^2_{partial}	0,022252747	1,169230769	1,641025641	1,821514812	0,102564103	
Other Religion	2	1	2	6	0	11

χ^2_{partial}	0,561238761	0,229701877	0,029137529	0,006196393	0,141025641	
No religious	2	2	2	22	0	28
χ^2_{partial}	0,341915228	1,069751301	2,440018315	3,515125004	0,358974359	
Total	42	57	80	206	5	390
$\chi^2_{\text{calculate}}$	46,81565493					

Table 3. Chi-square test in relation to education, with a significance level of 5% and degree of freedom 20

Sample	I Agree totally	I Agree partially	I Disagree partially	I Disagree totally	I don't Know	Total
Primary school	4	0	1	1	0	6
χ^2_{partial}	17,40805861	0,876923077	0,043269231	1,48476475	0,076923077	
Basic education	9	18	5	6	1	39
χ^2_{partial}	5,485714286	26,54210526	1,125	10,34757282	0,5	
High school	17	11	23	53	1	105
χ^2_{partial}	2,865515437	1,230865626	0,099175824	0,109249973	0,089010989	
Graduation (incomplete)	4	11	25	63	1	104
χ^2_{partial}	4,628571429	1,160526316	0,630208333	1,184546926	0,083333333	
Graduation (complete)	6	16	25	80	2	129
χ^2_{partial}	4,483669819	0,431977529	0,080724508	2,064855758	0,072450805	
No answer	2	1	1	3	0	7
χ^2_{partial}	2,059968603	0,000520532	0,132326007	0,131555176	0,08974359	
Total	42	57	80	206	5	390
$\chi^2_{\text{calculate}}$	85,51912762					

Silva (2015), in his research shows that religious teachers in their biology classes, have been called atheists by students for having taught evolutionary theory. Thus, aspects that create obstacles to the evolution of teaching may be related to the teachers' stance as well as students. Therefore, it is necessary to investigate this complex issue and propose didactic and pedagogical actions that facilitate the teaching of biological evolution adequately from the early grades in science classes, aiming to avoid that children acquire concepts that hinder assimilation a key issue for understanding the biology in the future. For writers like Silva *et al.* (2013), the evolution theme is related to scientific concepts in order to be included in environments where the educational focus is science, and at school and religious issues are intimate and familiar forum possessing other spaces for your tract, such as the Church. Reis *et al.* (2009) states that the school environment is the place people get most of their scientific knowledge. Therefore, it is essential to address the issue of evolution in science classes and correctly and completely Biology. Science and religion are important to society, both can contribute to improving the world differently. Ignorance of the two fields can generate unnecessary conflicts (SANCHES; DANILAS, 2012).

Final Considerations

The results from the question examined the questionnaire Rescuing Darwin made by Brazilian researchers indicated that the variables caused influence on respondents' answers, with regard to the teaching of creationism school Science / Biology.

The variable schooling showed how it is important to properly introduce the topic of biological evolution, especially in elementary school, so that students can start their scientific studies with a greater knowledge on the subject, avoiding possible misunderstandings regarding the content. With regard to religion, noted the importance of having attention as the increase of evangelicals in Brazil, because as presented in the text, this group tends to agree with the teaching of creationism in schools at the expense of evolutionism.

Thus, it highlights the importance of presenting the students, from their first contact with the science content the subject of biological evolution on its significance in the scientific context. It is important to conduct further research in Brazil that help to understand the perceptions of individuals in relation to the theme, in order to improve the teaching of evolution to avoid possible failures in its presentation to the students and prevent any attempt to insert background themes religion in science classes, such as creationism.

Acknowledgements

This work was supported by FAPEMIG agency and UNIFOR-MG.

References

1. Abrantes, P.; Almeida, F. P. L. de. Criacionismo e darwinismo confrontam-se nos tribunais... Da razão e do direito "Creationism and Darwinism confront If nos Courts ... The Reason and Law". Porto Alegre, v.11, n.24, p. 357-401, jul./dez. 2006.
2. Almeida, A. V. de; Falcão, J. T. da. R. A estrutura histórico-conceitual dos Programas de pesquisa de Darwin e Lamarck e sua transposição para o ambiente escolar "The historical and conceptual framework of the Darwin Research Programs and Lamarck and its transposition into the school environment". *Ciência & Educação*, v. 11, n. 1, p. 17-32, 2005.
3. Alters, B. J.; Alters, S. M. *Defending evolution in the classroom: a guide to the creation/evolution controversy*. Jones and Bartlett Publishers, Canada, 2001.
4. Araújo, E. S. N. N. de; Caldeira, A. M. A.; Caluzi, J. J.; Carvalho, G. S. Concepções Criacionistas e Evolucionistas de professores em formação e em exercício "Creationists and Evolutionists conceptions of teachers and workplace training". VII ENPEC Encontro Nacional de Pesquisa em Ciências. Florianópolis, 8 de novembro de 2009.
5. Behe, M. J. A caixa preta de Darwin: o desafio da bioquímica à teoria da evolução "Darwin's Black Box: The Biochemical Challenge to the theory of evolution". Jorge Zahar Editor, 1997.
6. Berkman, M. B.; Pacheco, J. S.; Plutzer, E. Evolution and creationism in America's classrooms: A national portrait. *PLoS Biol*, v.6, n.5. p. 920-924, 2008.
7. Bishop, B.; Anderson, C. Student conceptions of natural selection and its role in evolution. *Journal of Research in Science Teaching. USA*, v.27, p. 415-427, 1990.
8. Bizzo, N. M. V. Ensino de Evolução e história do Darwinismo "Evolution of teaching and history of Darwinism". Tese (Doutorado em Educação)-Faculdade de Educação-Universidade de São Paulo, São Paulo, 1991.
9. Carneiro, A.P.N. A Evolução Biológica aos olhos de professores não-licenciados "The Biological Evolution to non- licensed teachers of eyes". Dissertação de Mestrado em Educação Científica e Tecnológica. Centro de Ciências Físicas e Matemáticas - Universidade Federal de Santa Catarina, Florianópolis, 2004.
10. Carvalho, M. de; Matsuo, T; Zaia, D. A. M. Evolucionismo x Criacionismo: Aceitação e rejeição no século 21 "Evolutionism x Creationism: Acceptance and rejection in the 21st century". *Ciência hoje*, v.43, n.256, p. 36-41, Jan/Fev, 2009.
11. Colombo, S. Darwin nas mãos de Deus "Darwin in God's hands". Folha de São Paulo, São Paulo, 8 fev. 2009. Caderno Mais, p. 4.
12. Costa, L. O.; Melo, P. L. C.; Teixeira, F. M. Tensões e desafios no Ensino Médio "Tensions and challenges in high school". Atas do VII ENPEC – Encontro Nacional de Pesquisa em Ciências, 8 nov. 2009.

13. Coutinho, F. Â.; Munford, D.; de Jesus, F.; Winter, R. R.; Viana, G. M. Sobre as relações entre ciência e religião e alguns apontamentos para uma agenda de pesquisas em educação em ciências “On the relationship between science and religion and some notes for a research agenda on science education”. Atas do VIII ENPEC – Encontro Nacional de Pesquisa em Ciências – I CEIC - Congreso Internacional de Investigación en Enseñanza de las Ciencias, outubro de 2014.
14. Cunha, L. A. A luta pela ética no ensino fundamental: religiosa ou laica “The struggle for ethics in primary education: religious or secular”. *Cadernos de Pesquisa*, v. 39, n. 137, p. 401-419, 2009.
15. Cury, C. R. J. Ensino religioso na escola pública: o retorno de uma polêmica recorrente “Religious education in public schools: the return of a recurring controversy”. *Revista Brasileira de Educação*, São Paulo, set-dez, n. 27, p. 183-191, 2004.
16. Dalfovo, M. S.; Lana, R. A.; Silveira, A. Métodos quantitativos e qualitativos: um resgate teórico “Quantitative and qualitative methods: a theoretical rescue”. *Revista Interdisciplinar Científica Aplicada*, Blumenau, v.2, n.4, p.01- 13, Sem II. 2008.
17. Da Silva, I. D.; Andrade, R. S. O Criacionismo na Controvérsia Modernista-Fundamentalista na América do Norte “Creationism in modernist - fundamentalist controversy in North America”. *Anais dos Simpósios da ABHR*, v. 14, 2015.
18. Eder, E.; Turic, K.; Milasowszky, N.; van Adzin, K.; Hergovich, A. The Relationships Between Paranormal Belief, Creationism, Intelligent Design and Evolution at Secondary Schools in Vienna (Austria). *Science & Education*, v. 20, n. 5-6, p. 517-534, 2010.
19. Freitas, H.; Oliveira, M.; Saccol, A. Z.; Moscarola, J. O método de pesquisa survey “The method of survey research”. *Revista de Administração*, São Paulo, v.35, n.3, p.105-112, julho/setembro, 2000.
20. Dawkins, R. Deus, um delírio “The God Delusion”. Companhia das Letras, 2007.
21. Dawkins, R. O relojoeiro cego “The Blind Watchmaker”. Companhia das Letras, 2001.
22. Greene, E. D. The logic of university students’ misunderstanding of natural selection. *Journal of Research in Science Teaching*, v.27, n.9, p.875-885, 1990.
23. Goedert, L. A Formação do professor de biologia na UFSC e o ensino da Evolução Biológica “The Biology Teacher Education at UFSC and the teaching of Biological Evolution”. Dissertação (Mestrado em Educação Científica e Tecnológica)- Universidade Federal de Santa Catarina, Florianópolis, 2004.
24. IBGE – Instituto Brasileiro de Geografia e Estatística. Censo 2010. Disponível em: http://www.ibge.gov.br/home/estatistica/populacao/censo2010/caracteristicas_religiao_deficiencia/default_caracteristicas_religiao_deficiencia.shtm. Acesso em: 14 dez. 201g.
25. Machado, M. das D. C.; Mariz, C. L. Conflitos religiosos na arena política: o caso do Rio de Janeiro “Religious conflicts in the political arena: the case of Rio de Janeiro”. *Ciencias sociales y religión/Ciências sociais e religião*, Porto Alegre, ano 6, n. 6, p. 31-49, out. 2004.
26. Madeira, A. Fé e evolução: a influência de crenças religiosas sobre a criação do homem na aprendizagem da teoria da evolução com alunos do 3º ano do ensino médio “Faith and evolution: the influence of religious beliefs about the creation of man in learning the theory of evolution with the 3rd year high school students”. Tese de Doutorado. Dissertação apresentada ao Programa de Estudos Pós-Graduados em Ciência da Religião à PUC/SP, 2007.
27. Mahner, M.; Bunge, M. Is Religion Education compatible with Science Education? *Science & Education*, v. 5, n. 2, p. 91-99, 1996.
28. Meyer, D.; El-Hani, C. N. O que está em jogo no confronto entre criacionismo e evolução “What is at stake in the confrontation between creationism and evolution”. *Filosofia e História da Biologia*, v. 8, n. 2, p. 211-222, 2013.
29. Mota, H. S. Evolução Biológica e Religião: Atitudes de jovens estudantes brasileiros “Biological Evolution and Religion: Attitudes of young Brazilian students”. Dissertação (Doutorado em Educação)- Universidade de São Paulo, São Paulo, 2013.
30. Numbers, R. L. *The creationists: From scientific creationism to intelligent design*. Harvard University Press, 2006.
31. Oliveira, G. S. Aceitação/rejeição da Evolução Biológica: atitudes de alunos da Educação Básica “Acceptance / rejection of Biological Evolution: students attitudes of Basic Education.” 2009. Tese de Doutorado. Universidade de São Paulo.
32. Tidon, R.; Vieira, E. O ensino da evolução biológica: um desafio para o século XXI “The teaching of biological evolution: a challenge for the twenty-first century.” *Com Ciência*, Campinas, n.107, 2009.

33. Razera, J. C. C. Evolucionismo versus criacionismo no ensino de ciências: para além das controvérsias entre ciência e religião “Evolutionism versus creationism in science education : beyond the controversy between science and religion”. *Ciência em tela*, Bahia, v.2, n.1, 2009.
34. Reis, P.; Braga, R.; Lima, V.; Santos, A. L. dos. Reflexões sobre o ensino de evolução e suas consequências diante da laicidade estatal “Reflections on the teaching of evolution and its consequences on the state secularism”. III Encontro Estadual de Didática e Prática de Ensino, 2009.
35. Porto, P. R. A.; Falcão, E. B. M. Teorias da Origem e Evolução da Vida: Dilemas e Desafios no Ensino Médio “Theories of Origin and Evolution of Life: Dilemmas and Challenges in High School”. *Revista Ensaio*, Belo Horizonte, v.12, n.03, p.13-30, set-dez, 2010.
36. Rocha, Héliida da Cunha. Concepção de professores de ensino médio em Ceilândia - Distrito Federal sobre as teorias criacionista e evolucionista e sua influência no ensino “High school teachers design in Ceilândia - Federal District on creationist and evolutionist theories and their influence on education”. Trabalho de Conclusão de Curso (Licenciatura em Ciências Biológicas)—Universidade de Brasília, Brasília, 2012.
37. Rosa, V. L.; Muniz, E. C. N.; Carneiro, A. P. N.; Goedert, L. O tema evolução entre professores de biologia não-licenciados - dificuldades e perspectivas “The evolution theme among biology teachers unlicensed - problems and prospects”. In: VIII Encontro Perspectivas do Ensino de Biologia. Anais. São Paulo: Faculdade de Educação da Universidade de São Paulo, 2002.
38. Sanches, M. A.; Danilas, S. Busca de harmonia entre religião e ciência no Brasil: Reflexões a partir do ano de Darwin “Search for harmony between religion and science in Brazil: Reflections from the year of Darwin”. *Teocomunicação*, v. 42, n. 1, 2012.
39. Sepúlveda, C.; El-Hani, C. N. Quando visões de mundo se encontram: religião e ciência na trajetória de formação de alunos protestantes de uma licenciatura em Ciências Biológicas “When world views are: religion and science in the formation of history of Protestant students a degree in Biological Sciences”. *Investigações em ensino de ciências*, v. 2, n. 9, 2004.
40. Schunemann, H. E. S. A Educação Confessional Fundamentalista no Brasil Atual: Uma análise do sistema escolar da IASD “The Confessional Fundamentalist Education in Brazil Current: An analysis of the school system IASD”. *REVER—Revista de Estudos da Religião*. São Paulo, 2009.
41. Silva, H. M.; Araújo, E. S. N. N.; Mortimer, E. F.; Silva, P. R.; Souza, A. C. L. A percepção no Brasil sobre a hipótese do Criacionismo da Terra Jovem “The perception in Brazil on the hypothesis of creationism Young Earth”. *Quaerentibus*, Puebla, México; p. 7-26 Ano 4, n.º 5, janeiro-julho, 2015,
42. Silva, H. M., Araújo, E. S. N. N., Silva, P. R. Perception of Brazilian Citizens about Darwinism and the (Non) Influence of God in the Evolutionary Process, *In: Proceedings of Intcess 14 - International Conference on Education and Social Science Proceedings*, Istambul, Turkey, p. 1390-1399, February, 2014.
43. Silva, H. M.; Silva, P. R. da.; Souza; A. C. L.; Araujo, E. S. N. N. de. A influência da religiosidade na aceitação do evolucionismo: um estudo em uma amostra da população brasileira “The influence of religiosity acceptance of evolution : a study in a sample of the population”. *Conexão Ciência*. Formiga, v. 8, n. 1, p. 01-19, jan./jun. 2013.
44. Silva, H. M. Professores de Biologia e Ensino de Evolução: Uma perspectiva comparativa em países com contraste de relação entre Estado e Igreja na América Latina “Teachers of Biology and Evolution Teaching : A Comparative Perspective countries with respect to contrast between church and state in Latin America.” Belo Horizonte: UFMG, 2015. Tese (Doutorado em Educação) - Programa de pós-graduação em Educação, Universidade Federal de Minas Gerais, Belo Horizonte, 2015.
45. Silva, H. M.; Mortimer, E. F.; Araujo, E. S. N. N. de.; Silva, P. R. da.; Souza, A. C. L. A percepção no Brasil sobre a hipótese do Criacionismo da Terra Jovem “The perception in Brazil on the hypothesis of creationism Young Earth.” *Teología y Ciencias Quaerentibus*, n. 5, julho, 2015.
46. Spencer, N.; Alexander, D. *Rescuing Darwin: God and Evolution in Britain today*. London: Theos, 2009.
47. Vieira, V.; Falcão, E. B. M. Laicidade e Ensino de ciências: a necessária reflexão na escola privada “Secularism and science education : a necessary reflection on the private school”. *Revista de Educação em Ciência e Tecnologia*, v.5, n.3, p. 83-100, novembro. 2012.