

THE INFLUENCE OF RELIGION ON PORTUGUESE AND BRAZILIAN TEACHERS' CONCEPTIONS ABOUT THE ORIGIN OF LIFE.

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Abstract: Teachers' conceptions about human evolution have been a matter of intense research by Quessada and Clément (2010) in the context of the European BIOHEAD-CITIZEN project. Having in mind the socio-cultural links between Portugal and Brazil, in the present paper we extended the BIOHEAD-CITIZEN study to Brazilian teachers and compared with the equivalent Portuguese sample. The BIOHEAD-CITIZEN questionnaire was applied to 368 teachers and future teachers from Braga district (Portugal-Pt) and 300 from S. Paulo State (Brazil-Br).

Results show a stronger influence of religious values in the Brazilian group as compared with the Portuguese one, though both groups are aware of the natural selection role in evolution theory. Furthermore, significantly ($p < 0.05$) higher percentage of Brazilians (67.0%) refer God as being in the origin of mankind as compared with the Portuguese (45.5%). Similarly, 73.3% of the inquired Brazilians believe in God influence for the creation of life as compared to 49.2% of the Portuguese respondents. Although the Portuguese cultural influence in Brazil is strong (for about 500 years and having the common Portuguese language), these results show that the Brazilians, rather than the Portuguese, put in evidence their religious values, which comes along with the existence of more Agnostic/Atheist in Portuguese (9.4%) than in Brazilians (6.4%) samples.

Keywords: Evolution, Creationism, Human origin, Teachers' conceptions.

INTRODUCTION

The teaching of Evolution of life on Earth, particularly the Human origin, is a matter of great concern nowadays and in some countries it has been "*concealed, denied, or confused with theories not testable by science*" (IAP, 2006: 1). In a large study involving 14 countries, Quessada and Clément (2010) have shown that national school programmes of four countries (Algeria, Burkina Faso, Lebanon and Morocco) never mention biological evolution, whereas other ten countries refer it either in upper secondary school only (Cyprus, Romania, Senegal and Tunisia) or in primary and secondary school (Estonia, Finland, France, Hungary, Italy and Portugal). Regarding specifically Human Evolution, only eight of these fourteen countries refer it in their school programmes. In other countries, as in Greece, Human Evolution is present in the national programme but often it is not taught in school (Lakka & Vassilopoulou, 2004; Prinou, Halkia & Skordoulis, 2007). Other studies about teaching Evolution have taken place in several other countries – in Spain (Jimenez-Aleixandre, 1994,

1996; Barberá, Beatriz & Pérez-Pla, 1999), in China, USA and URSS (Swartz, Anderson & Swetz. (1994) – often assuming the importance of the social context for the national programmes and textbooks contents (Skoog, 2005).

In a large European project BIOHEAD-CITIZEN (“Biology, Health and Environmental Education for better Citizenship” – FP6-STREP CIT2-CT-2004-506015) involving 19 countries from Europe, Africa and Middle East (Carvalho, 2004; Carvalho and Clément, 2007), the interactions between social context factors and teachers’ conceptions about Evolution has been a matter of research by Quessada and Clément (Quessada et al, 2007; Quessada, 2008; Clément & Quessada, 2008, 2009 – all referred in Clément & Quessada, 2010), putting in evidence the degree of believing in God and of practicing religion, the country economical level and the teachers’ level of training.

Having in mind that Brazil was a Portuguese colony until 1822, having high cultural influence (especially the common Portuguese language) but also with strong differences (especially the multiculturalism in Brazil), in the present study we extended the BIOHEAD-CITIZEN study to Brazilian teachers and compared to the equivalent Portuguese sample, focusing on the religious beliefs in the origin of life and human kind.

METHODOLOGY

The BIOHEAD-CITIZEN questionnaire used in this work has been validated and applied to several countries (Carvalho & Clément, 2007; Munoz et al. 2009) was applied to teachers and future teachers from Braga district (Portugal-Pt) and from S. Paulo State (Brazil-Br). In either country the questionnaire was applied to six samples of pre-service teachers (Pre) and in-service teachers (In) of primary school (P), and of secondary school, teaching Biology (B) and Portuguese (the national Language, L). This makes six subsamples in each country (Pre-P, In-P, Pre-B, In-B, Pre-L and In-L) which were well balanced as shown in Figure 1.

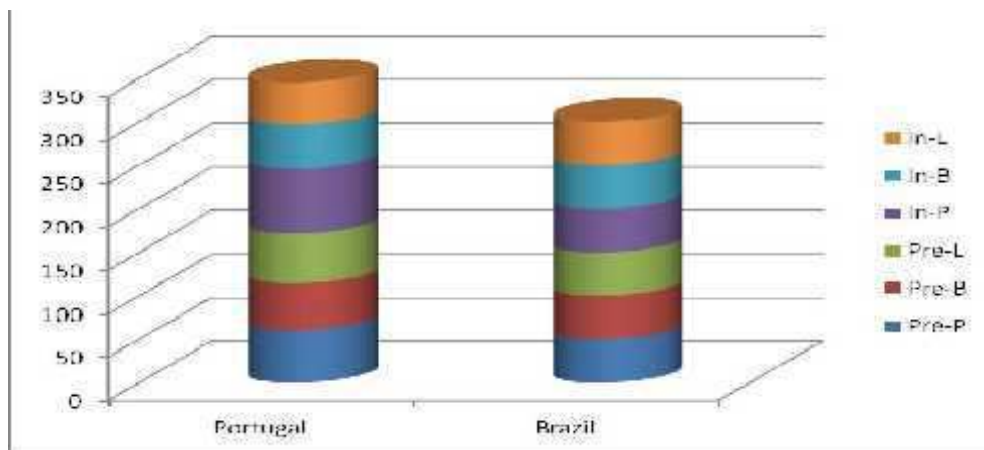


Figure 1: Teaching group distribution in both Portuguese and Brazilian samples.

The sample size (368 Pt and 300 Br), the percentage of women (82% Pt and 88% Br) and the age mean (32 years old either Pt or Br) show the good balance between both Portuguese and Brazilian samples. Figure 2 shows the age distribution of Portuguese and Brazilian participants, where the 21-30 years-old group is the largest one in both samples.

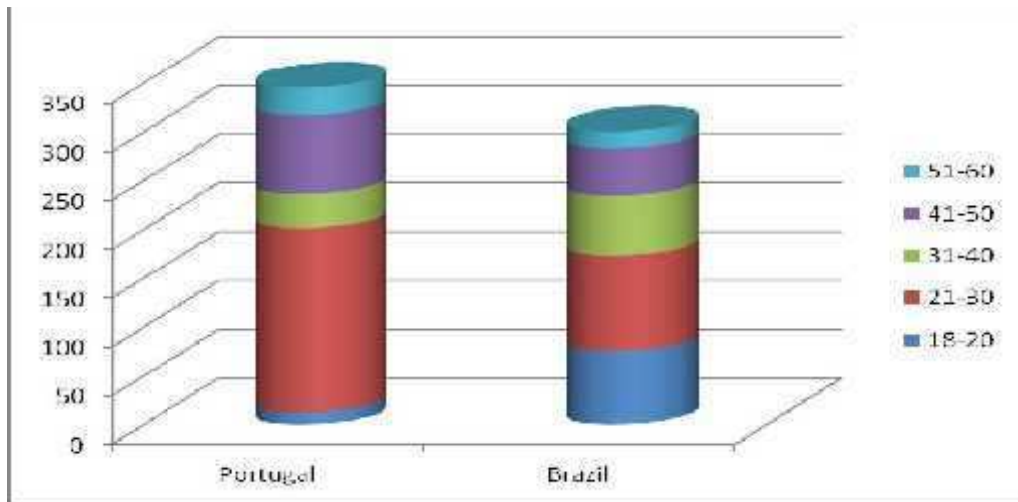


Figure 2: Age distribution in both Portuguese and Brazilian samples.

RESULTS AND DISCUSSION

The majority of responders in both countries were shown to be Catholic (76.4% Pt and 67.4% Br), but Protestants (7.4% Pt and 11.1% Br) and Agnostics/Atheists (9.4 Pt and 6.4 Br) were also present in both samples, whereas Muslims and Jewish were absolutely absent (Figure 3).

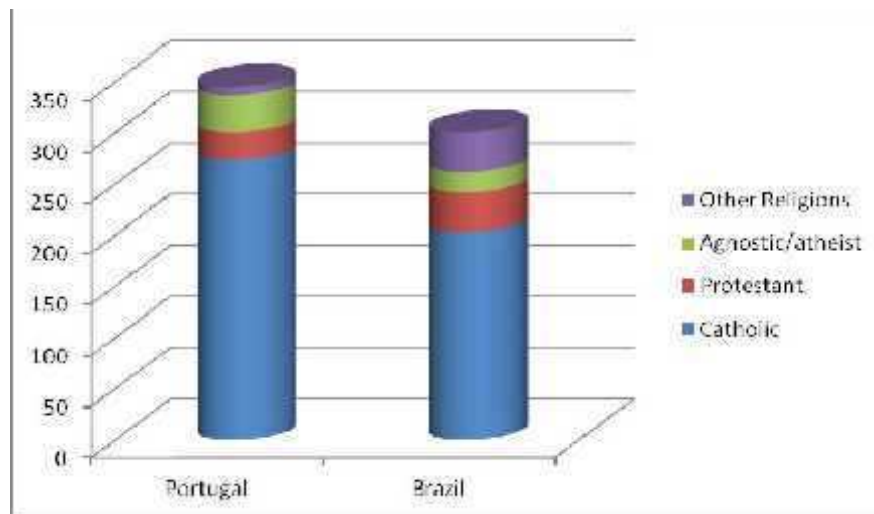


Figure 3: Religious faith distribution in both Portuguese and Brazilian samples.

When asked about believing in God (likert scale: from “I believe in God” to “I don’t believe in God”) results showed the Brazilians were greater believers than the Portuguese (Figure 4A.) The participants were also asked about their level of religion practice (likert scale: from “I practice religion” to “I don’t practice religion”) and the Brazilian group said to practice more than the Portuguese did (Figure 4B).

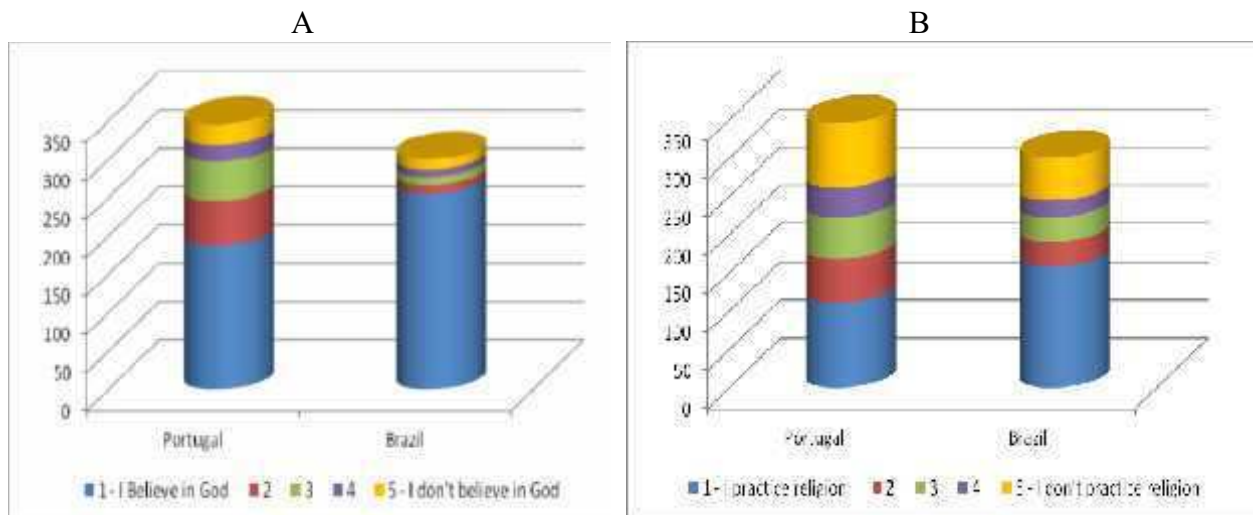


Figure 4: God believers (A) and religion practice (B) in both Portuguese and Brazilian samples.

Of the 15 questions on Evolution, questions A64, B28, B43, B48 were those with stronger contribution for the axes in the principal components analysis (PCA). Therefore they were preferentially chosen to be used for the comparative analysis on Evolution conceptions between Portuguese and Brazilian samples. The statistical analysis was carried out by using the Software Package for Social Sciences (SPSS, version 17).

For the analysis we put the itens “Great importance” and “Some importance” together, contrasting with the itens “Little importance” and “No importance at all” also put together. The answers of Portuguese and Brasilien respondents show that the former (46.8%) give significantly ($p < 0.05$) lower importance than the latter (78.6%) to the importance of “God” in species evolution (Question B48, Figure 5A). However, both groups do not differ significantly ($p > 0.05$) about the importance of the “Natural Selection” in the evolution process: 94.0% and 86.3% of the Portuguese and Brasiliens responders, respectively (Question B43, Figure 5B).

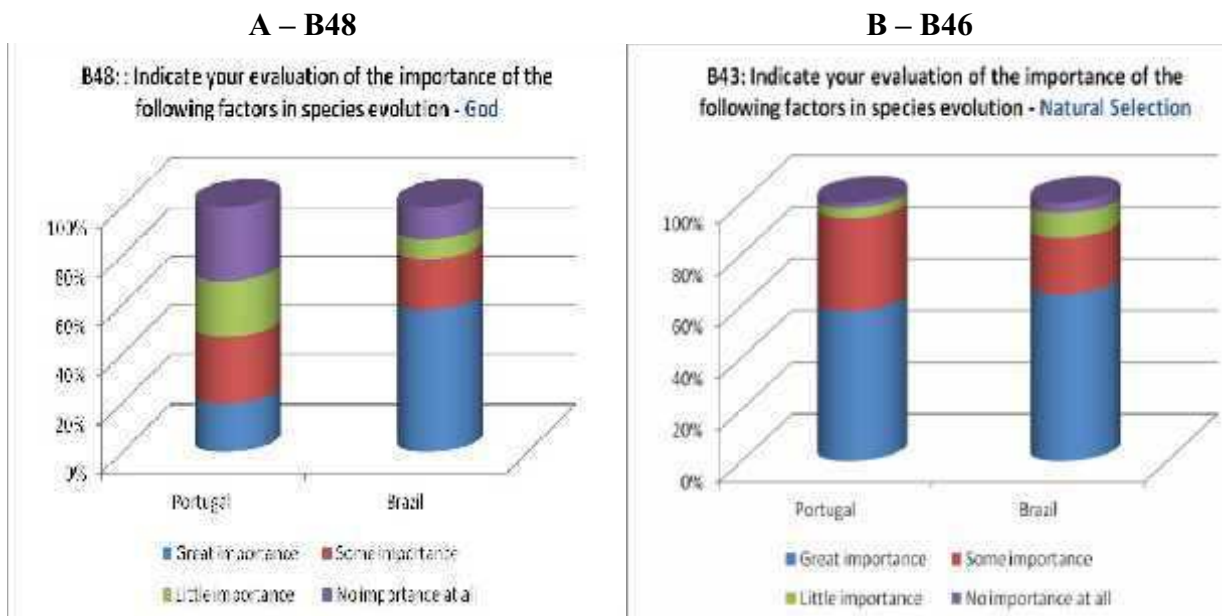


Figure 5: Proportion of Portuguese and Brazilian responders to questions B48 (God influence in evolution) and B43 (Natural selection in evolution).

These results show a stronger influence of religious values in the Brazilian group as compared with the Portuguese one, though both groups are aware of the natural selection role in evolution theory.

Similarly, a significantly ($p < 0.05$) larger percentage of Brazilians (67.0%) refer God as being in the origin of mankind as compared with the Portuguese (45.5%) (Question B28, Figure 6A). This is in agreement with the Question A64 (Figure 6B) where, again, 73.3% of the inquired Brazilians believe in God influence for the creation of life as compared to 49.2% of the Portuguese respondents.

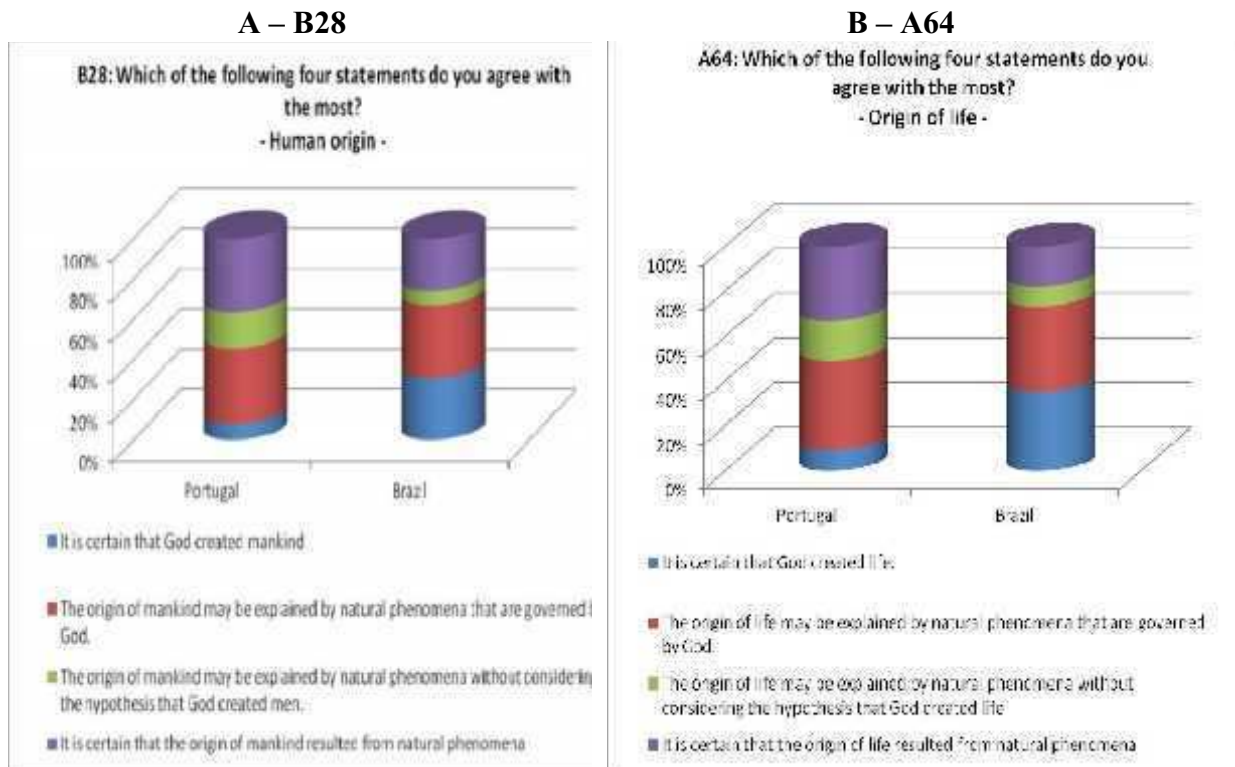


Figure 6: Proportion of Portuguese and Brazilian responders to question B28 (God influence in humankind evolution) and A64 (God influence in life origin).

Although the Portuguese cultural influence in Brazil is strong (for about 500 years and revealed by the common Portuguese language), these results show that the Brazilians, rather than the Portuguese, put in evidence their religious values, which comes along with the existence of more Agnostic/Atheist in Portuguese (9.4%) than in Brazilians (6.4%) samples. Really interesting is the fact that more Portuguese (84.4%) than Brazilians (81.2%) declared to be Christians, although their religious convictions seem to be irrelevant regarding the evolution process. In fact these results confirm our preliminary studies (Araujo et al., 2009; Caldeira et al., 2010) showing that Brazilian teachers live with the evolutionist and creationist conceptions, apparently without conflict.

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