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## Preliminary Results on Malaysian Teachers Conception of Evolution

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### Abstract

In Malaysia, a multi-racial and religious nation, Islam is the most widely professed religion with the proportion of 61.3 per cent with other major religions embraced being Buddhism of 19.8%, Christianity of 9.2% and Hinduism of 6.3% based on the 2010 population census. The Biohead-Citizen research project aimed at analysing Malaysian teachers' conceptions of evolution varying with their religions on Biology, Health and Environmental Education in promoting a better citizenship, including their affective and social dimensions. Using a questionnaire validated by the Biohead-Citizen research project (2004-2008), 204 teachers teaching in Primary and Secondary schools or finishing their teacher' training in Kuching and Samarahan in the State of Sarawak, Malaysia was sampled to identify if they varied depending their religions. The six topics included health education; human reproduction and sex education; ecology and environmental education; human brain; human genetics and human origins. Significant differences were obtained with Muslim teachers being more creationist than their colleagues, and Buddhist teachers being more evolutionists. Christian teachers' conceptions are intermediate between these two poles. These results are compared with those obtained in other countries. More than 70% of the Malaysian teachers were shown to be most radically creationist agreeing with the statement, *It is certain that God created life*. Accordingly, Malaysian teachers would have probably difficulty to teach the biological evolution, because creationism is not scientific and cannot be taught in biology. Nevertheless, for the origin of life as well as for the origin of humankind, 21% of Malaysian teachers are indicative of being evolutionist and creationist. They can accept and teach evolution, just believing that the processes of evolution are controlled by God.

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## 1. Introduction

The Biohead-Citizen project (Biology, Health and Environmental Education) for better citizenship in 2004 – 2008 was conducted in 19 countries, aimed to understand how Biology, Health and Environmental Education can promote a better citizenship (Carvalho et al., 2008). The countries consisted six EU 'old' Member States of Portugal, France, Germany, Italy, Finland and United Kingdom; seven new Member States of Cyprus, Estonia, Hungary, Lithuania, Malta, Poland and Romania and six Francophone African countries of Lebanon, Tunisia, Algeria, Morocco, Mozambique and Senegal. The teachers' conception related to six topics as defined by the consortium for the research on Human Brain; Human Genetics; Human Origin; Human Reproduction and Sex Education; Health Education and Ecology and Environmental Education were analysed. Conceptions were based on emergences from interactions between the three poles: the scientific knowledge (K), the systems of values (V) and the social practices (P), as proposed by the model KVP (Clément, 2004 and 2006) in which defines K being referred to the publications coming from the scientific community, while P, the practice of teaching practices associated to personal and professional activities as well as the social and historical context and V associated in a large sense to opinions, beliefs and ideologies. In the analysis of the teachers' conceptions on Evolution, the first results showed very important differences among countries and encouraged the extension to other countries, to test several hypotheses (Clément & Quessada 2008, 2009). It was concluded that the differences among religions are only dealing with values, whereas the differences among countries were dealing with values and knowledge. There was a very strong correlation between the values which differentiated the countries and the religions. The analysis also indicated there was an interaction between values and knowledge related to teachers' conceptions on some topics such as the role of chance, natural selection, and intelligent design in the evolution of species. In addition, the independence of some knowledge from the values, differentiating teachers among themselves as well as groups of teachers by countries showed a possible acquisition of knowledge related to evolution independently from religions suggesting that when the knowledge increased, the values also could change to be more evolutionists. Compared to other international surveys until now done in several countries to evaluate the degree of acceptance of evolutionism by significant samples of population (Miller et al, 2006; Hameed, 2008; The Pew forum, 2013), this research is original for two reasons: it uses several questions related to evolution, and the sampling is strictly the same in all the countries, only focused on teachers who are key-persons to teach evolution.

In the initial 18 countries, nearly all the Muslim teachers were in less developed countries. The extension of the research was in consequence focused on other African countries where some or most of the teachers are not Muslim (Clément, 2013), and tried also to cover some countries outside Europe or Africa. The total number is today 31 countries (Clément, 2014) in which Malaysia is the 31<sup>st</sup> country, chosen from some characteristics: an important part of teachers are Muslim; the GDP per capita is 10 429\$, more important than in African or Middle East countries until now implied in the research; and there are other religions other than Muslim that include Christian or Buddhist. The only study on Buddhist teachers was only in South Korea (Seo & Clément, 2014) where Buddhist teachers are as evolutionist as their Agnostic or Atheist colleagues. In Malaysia, a multi-racial and religious nation, Islam is the most widely professed religion with the proportion of 61.3 per cent with other major religions embraced being Buddhism of 19.8%, Christianity of 9.2% and Hinduism of 6.3% based on the 2010 population census. In consequence, research question is simple: are the Malaysian teachers' conceptions of evolution varying with their religions? Thus a preliminary study was conducted in Sarawak, Malaysia whereby the Christian population is made up of 43%, Islam of 32%, Buddhist of 14% and while others of 7% and no religion of 1%.

## 2. Methodology

The questionnaire built and validated inside the Biohead-Citizen research project (2004-2008: Carvalho et al, 2008) containing 153 questions with 15 questions being dedicated to evolution, and 22 questions related to personal information (gender, age, level of instruction, religion, political or religious opinions was used. The collection of the filled questionnaire was totally anonymous. The sampling was the same as in other countries of the Biohead-Citizen project. Nevertheless, in Malaysia, the collection of data was not yet well balanced for the six sub-sampling interviewed in each other country, but it is already possible to analyze the present total of 204 teachers who filled out the questionnaire categorized with 58 In-service teachers of Biology (Secondary Schools); six Pre-service

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