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Can schools find way through creationism-meets-science minefield in the classroom?

Should discussion of religious beliefs be banned from the science classroom? Specifically, should evolution be taught without reference to religious beliefs?

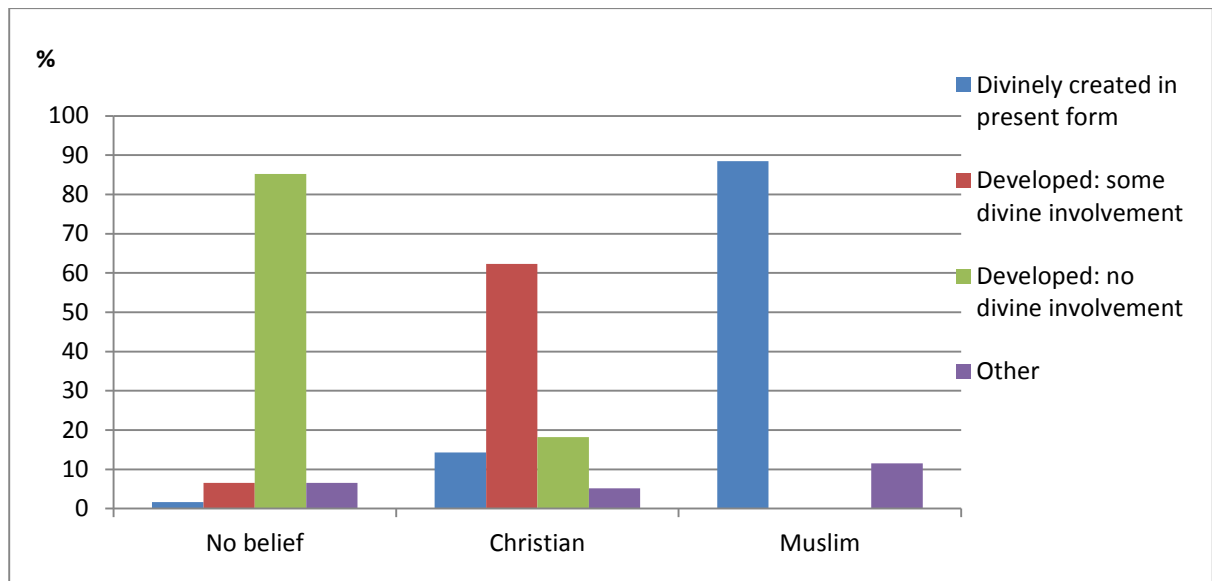
There are concerns that, released from the strictures of the national curriculum, some faith-based academies and free schools will replace Darwin with creationismⁱ. In response, the government has clarified that all state-funded schools must teach evolution and not present creationism as a scientifically valid theoryⁱⁱ. Some science teachers favour ignoring the context of religion altogether, but might that alienate or confuse students with particular religious beliefs?

We wanted to explore students' own views and experiences. Using questionnaires and focus groups, we conducted an in-depth study of over 200 14-16 year olds to find outⁱⁱⁱ. They attended four English secondary schools representing three different contexts: Christian faith-based; non-faith with majority Muslim catchment; and two non-faith, mixed catchment.

Did humans evolve or were they created?

Students were asked which of three explanations was closest to their understanding of how human beings originated. Their responses varied considerably by their religious belief (Figure 1). Most of those with no faith said humans had developed over millions of years but God "had no part in this process" (evolution); over half the Christians thought they had "developed over millions of years from less advanced forms of life. God had some part in this process"; and most Muslims believed humans were "created by God pretty much in their current form" (creationism).

Figure 1: Students' opinions about origin of human life (by faith)

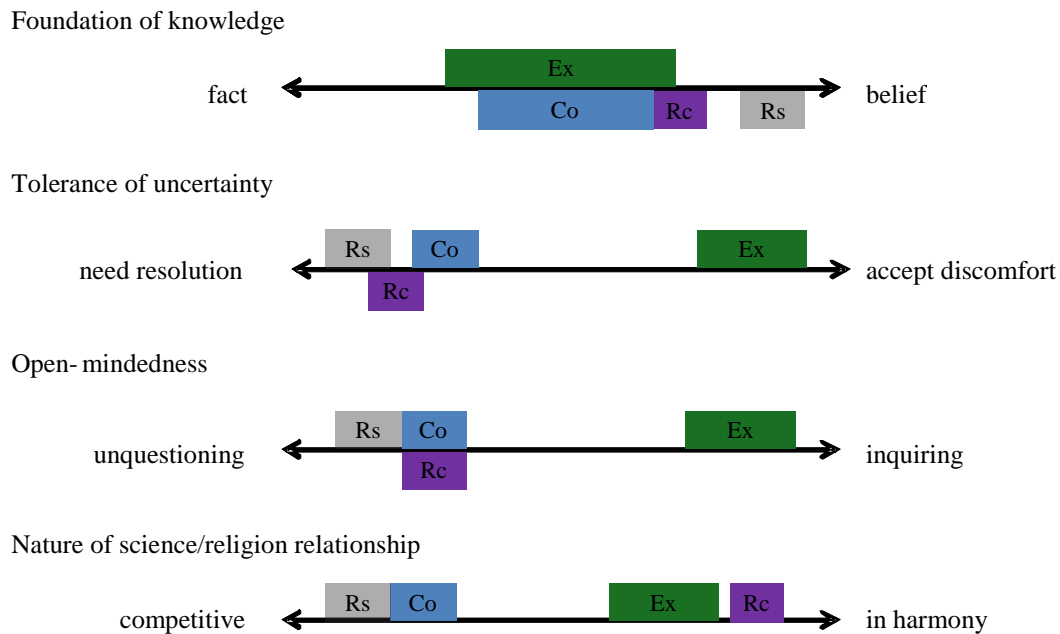


This pattern was reflected in the school attended. Over 80% at the majority Muslim school believed in creationism whereas nearly 60% of those at the Christian school thought humans had developed over time with some divine involvement and a quarter accepted evolution without divine involvement. Although half those at the mixed catchment, non-faith schools accepted evolution without any divine involvement, around one in three thought God had played some part in the development of humans and at 10%, a significant minority believed in creationism.

Willingness to engage

It was possible to divide the students into four types depending on how willing they were to engage with the inter-relationship between science and religion (as exemplified by the origin of life topic). Categorisation depended on whether they prefer belief-based or fact-based knowledge; their tolerance of uncertainty; their open-mindedness; and whether they conceptualise science and religion as being in conflict or harmony (Figure 2).

Figure 2: Mapping of types of engagement



Key

Rs = Resistors (refuse to engage with one concept, usually the scientific evidence)

Co = Confused (undecided between belief/evidence, or not considered previously)

Rc = Reconciled (accommodate religious beliefs and scientific evidence)

Ex = Explorer (openly engage with topic)

Resistors value belief-based knowledge above fact. They consider that scientific and religious views cannot or should not be reconciled. Most Muslim students were in this camp. They felt it was inappropriate to challenge something so fundamental to their lives (“*we follow our faith for a reason, we shouldn’t have to question*”).

The Confused are either consciously confused and making uneasy compromises (“*I was raised up with the religious education but the science is more logical so I just kind of bottle out and pretend they’re both right*”) or simply had not given much thought to the issue. They are often torn between belief- and fact-based knowledge systems, see science and religion as being in competition, and find it difficult to be sufficiently open-minded to achieve the resolution they desire. Examples were found across all four schools.

The Reconciled have come to some accommodation between their religious views and the scientific outlook allowing them to accept both (“*... in order for the big bang to have*

happened there must have been a superior being to have caused it”). They tend to give precedence to belief over fact. In their worldview, science and religion are in harmony.

Explorers enjoy the challenge of fitting together religious and scientific viewpoints. They are not wedded to fact or belief, but are constantly weighing up the two forms of knowledge. They are comfortable dealing with a lack of resolution and willing to question. A student in the majority Muslim school found her school environment conducive because teachers were sensitive about life being seen through the lens of religion (“*Cos we learn about religion and science together on a daily basis we really have the choice to decide if there’s a conflict or not*”). Explorers were rare in the study.

Our research has shown that teachers need to be aware of this complexity, and that a silent classroom does not necessarily represent agreement. To avoid alienating students, understanding of evolution should be emphasised instead of acceptance. If the topic is presented insensitively, students may feel compelled to choose between science and deep-rooted religious beliefs. Rather than asking whether religious views should be covered in science lessons, the question is can we afford not to?

ⁱ <http://theconversation.com/should-we-teach-creationism-in-schools-yes-in-history-class-22808>

ⁱⁱ

<http://www.education.gov.uk/schools/leadership/typesofschools/freeschools/freeschoolsfaqs/a0075656/free-schools-faqs-curriculum#faq5>

ⁱⁱⁱ <http://www.tandfonline.com/doi/abs/10.1080/09500693.2013.853897#.UvZjms5GZIO>