

Evolution acceptance in children linked to aptitude, not belief

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The study found that students that did not accept evolution tended to have lower understanding of science in general. Credit: University of Bath

In contrast to adults, acceptance of evolution in schoolchildren in the UK is linked to their scientific aptitude rather than conflicts with belief systems, say scientists at our Milner Centre for Evolution.

Previous studies in the USA have shown that adults that strongly reject evolution are often highly educated but reject the [scientific consensus](#) owing to conflicts with their belief systems. This phenomenon is also seen for other emotive subjects such as climate change and vaccination,

where some people reject the scientific consensus despite the large body of evidence supporting it.

Does the same clash of beliefs and evidence prevent effective learning in the classroom? Scientists at the Milner Centre for Evolution found that for UK schoolchildren, surprisingly this was not the case. They conducted a large controlled trial of 1,200 students aged 14-16 in 70 classes from secondary schools across the south and south west of the UK, in which students were tested for acceptance of evolution and understanding of evolution and, as a control subject, genetics.

No conflict with beliefs

They found that non-acceptors of evolution tended to be in the foundation science classes where students' understanding of science generally was weak, their understanding of evolution being just one part of that.

The study also asked whether the non-acceptors' ability to improve their understanding of evolution through teaching was any weaker than their ability to improve their understanding of the less emotive, but related topic, basic genetics.

The non-acceptor students had lower prior understanding of both evolution and genetics, and they responded poorly not only to the teaching of evolution, but, importantly, also to genetics. This indicates they were less likely to accept evolution because they struggled to understand science rather than due to psychological conflicts with their beliefs.

The researchers concluded that the current system of science teaching was not optimal for the lower aptitude students.

Professor Laurence Hurst, Director of the Milner Centre for Evolution, led the study. He said: "Previous studies in the USA found strong rejecters of evolution were often highly intelligent and understood concepts but were able to pick holes in the data to match their belief systems.

"So we were surprised to find that in UK schoolchildren there was no evidence of psychological conflict in the low acceptors – it was simply that they were unlikely to accept evolution if they were struggling to understand the concepts.

"It's unclear as to why our study on children showed contrasting results to previous studies on adults.

"It could be that there is no psychological [conflict](#) because younger people's [belief](#) systems are not yet fully formed, or alternatively the students avoid the conflicts by the taking the attitude that religious and scientific acceptance are compatible. We found some evidence for the latter.

"Also there are different cultural demographics in UK compared with the USA in terms of religious beliefs and acceptance of science. People tend to adopt the same mindset of folks around them. In the UK this is mostly secular and accepting of the importance of evidence."

Teaching science differently

Dr. Rebecca Mead, a former teacher and first author of the paper, added: "Our findings tell us we need to teach science differently—The way we are currently teaching science is leaving some students behind.

"Perhaps students should instead be taught according to learning styles rather than ability, to help all students understand the basic concepts of

[science.](#)"

The study included schools from both the state and private systems and comprised a large breadth of social, religious and economic demographics.

The research team previously showed that [teaching](#) genetics before evolution improves the students' understanding of [evolution](#) concepts by an average of seven per cent.

More information: Rebecca Mead et al. Scientific aptitude better explains poor responses to teaching of evolution than psychological conflicts, *Nature Ecology & Evolution* (2017). [DOI: 10.1038/s41559-017-0442-x](#)

Provided by University of Bath

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