For Immediate Release

AUB researchers study link between practicing religion and attitudes toward biological evolution

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Higher education has long been rooted in autonomous thinking which has been the goal of those seeking to engender a culture of critical thinking in their students. Ergo, researchers at the American University of Beirut (AUB) have been studying conceptions of biological evolution in the Middle East for over a decade in order to ascertain how students and their teachers construe scientific evidence and make autonomous decisions.

"We started the research to figure out whether students were autonomous thinkers or not and if teachers' understanding of evolution made a difference in the way students think," said Saouma BouJaoude, director of the Science and Math Education Center at AUB and an AUB professor of education. "We chose evolution because it is a controversial issue and that's how you really find out if people are thinking for themselves."

In 1997 BouJaoude collaborated with Zoubeida Dagher, a professor of science education at the University of Delaware and a graduate of AUB, to investigate how biology college students from different faiths perceived biological evolution. Since then BouJaoude and his colleagues have compiled compelling evidence that, despite the fact that their research participants are educated in the sciences, they fail to appreciate the essence of historical evidence and insist on direct experimentation as the only means to collect evidence to investigate scientific hypothesis.

The findings from the first study that looked at 62 Lebanese undergraduate biology students found that only 48 percent of them supported the notion of biological evolution while 34 percent were opposed to the idea. A marked split between students of different faiths emerged as well with 82 percent of Christians accepting evolution as opposed to 35 percent of Muslim students.

In a follow-up study, BouJaoude and Dagher then took a subset of 15 undergraduate biology students and conducted targeted interviews to ascertain the reasons for different students' responses. The majority of students (9 out of 15) focused on the nature of evidence given for the theory, mostly expressing the idea that evolutionary theory is deficient in meeting a criterion of "proof" or evidence that was trustworthy. Students also deduced that biological evolution was only a "theory" because it lacked "hard facts" as evolutionary theory's deductions are based on historical rather than experimental evidence.

A much larger study spearheaded by BouJaoude and professors from John Hopkins, Syracuse, and McGill on 865 Lebanese students and 194 Egyptian Grade 12 students provided similar results. "We found that it was not religion but religiosity, or the practicing of religion that mattered; you could be either Muslim or Christian and not be religious and it would be the same result," said BouJaoude.

Moving one rung up the educational ladder targeted interviews on both secondary school biology teachers and university level professors were performed. The results at this level mirrored that of high school and college students with under 50 percent of secondary school teachers accepting the theory while those at the university level were the only segment where the majority of those interviewed supported evolutionary theory.

In partnership with four other global universities researchers at AUB are now undertaking a new project funded by the European Commission aimed at devising science education methods to engender autonomous thinking while preserving cultural and gender diversity. The project, which cost over 100,000 Euros, started last April and is expected to last three years.

Researchers will analyze science education policies; perform case studies in 10 schools in each country; develop new methods and test them on students. In the end, the results of the research will be presented to policy-makers in partner countries with the objective of changing educational policies.

"Because evolution is perceived as challenging religious beliefs any perception requires more than changing knowledge but also requires a change in belief structures," said BouJaoude. "Teaching the nature of evolution effectively requires more than using new teaching methods; it requires a very deep understanding of the nature of science and an appreciation of the role of evidence in the development of scientific ideas."

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Note to Editors

About AUB

Founded in 1866, the American University of Beirut bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. A teaching-centered research university, AUB has more than 600 full-time faculty members and a student body of more than 7,000 students. AUB currently offers more than 100 programs leading to the bachelor's, master's, MD, and PhD degrees. It provides medical education and training to students from throughout the region at its Medical Center that includes a full service 420-bed hospital.

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