Unwarranted Conclusions Regarding Attitudes About Evolution

Dear Editor:

I applaud Dorothy Matthew’s recent article (August 2001) for addressing the critical question of how best to test evolution and for its description of a very creative curriculum. In the described study, student attitudes towards evolution were tested before and after presentation of a curriculum that contained creation stories. The article’s conclusion was that a curriculum which includes creation stories is more effective in fostering scientific views than traditional curricula that lack creation stories.

Unfortunately, flaws in the study and its interpretation make any such conclusion unwarranted. First, the degree of change in attitude, although statistically significant, was not substantial enough even to deserve mention: the pre-test average was 38.65 and the post-test average was 36.85. That’s only a 5% change in attitude score. If that’s all the change we can expect from four weeks of intensive study of evolution, then we need to look elsewhere for methods of teaching.

The second and more important flaw is that no control group was used in the study, that is, no group received an evolution curriculum that did not contain creation stories. Therefore, we can’t know whether the slight change in attitude attributed to the creation-story-containing curriculum was equal to or greater than or even less than the change that would have occurred if creation stories were not included. Also desirable would have been a second control group that did not receive any instruction in evolution. Then we would know if teaching evolution has any effect on attitude.

Studies such as the one described in Matthews’ article are critically important in determining how best to remedy the embarrassingly poor understanding that our students have of science in general and of evolution in particular. However, it is also important that decisions as to what methods we use be based on solid evidence. Otherwise, we may be wasting our time and energy.

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Online Teaching Defended

Dear Editor:

I am writing in response to your editorial in the August 2001 journal. I am an online instructor and feel I must respond to your editorial. The editorial discusses one form of online teaching, using videotaped lectures, and uses this to bash all forms of online teaching. However, many online programs do not use this approach, but instead focus on the use of discussion formats. Students are asked to read textbooks, readings, prepared written lectures, and then participate in ongoing discussions, either as live chat sessions or as asynchronous discussions. As in on-ground courses, students are asked to submit papers, take examinations, and make presentations (using such programs as Powerpoint®). Instructors are in contact with students almost every day, rather than just at a regular class time or during office hours, through the use of e-mail. The editorial makes the point that the online format is not good for average (or below average students). However, the truth is that in an online course each student has a one-on-one relationship with the instructor and most students are therefore able to learn much more than just sitting in a large class (200+) in a typical auditorium-style on-ground class. While some of the experience of being in an on-ground class may be good, it is of little value if you never actually get to talk to the instructor but must instead interact with the graduate teaching assistants. Another problem of on-ground classes is that they are offered at times and places convenient for the institution and the professors. This ignores the reality that many of the students are older, and many of them have jobs and/or are single parents. The online course allows for lifelong learning, even if the experience aspect may need to be set aside.

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Correction

In “What on Earth Is Evolution” (ABT, October 2001, p. 580, column 1, line 4), the line should read: “...buried during the 79 A.D. eruption of Mt. Vesuvius.”