Biology versus computers

Until some years ago, students desirous of studying science in the 11th and 12th classes in the Central Board of Secondary Education (CBSE) system, had to compulsorily study physics, chemistry, mathematics and biology. This I thought was a great improvement over the system that existed in my high school days, when biology and mathematics were made mutually exclusive immediately after the 8th class. However, some years ago the CBSE quietly introduced computer science as an alternative to biology at the 11th and 12th class levels. Thus students now have to choose physics, chemistry, mathematics and computer science or physics, chemistry, mathematics and biology. In effect, students interested in computers cannot study biology and those interested in biology cannot study computer science.

It is widely recognized that this is the age of biology. Any one even casually following the progress of biology cannot fail to recognize the pre-eminent role that computers are beginning to play in present day biological research, be it molecular biology or organismal and evolutionary biology. The advantage that Indian scientists have in undertaking computer-based research projects as opposed to projects dependent on sophisticated instruments is only too well known. The human genome project is expected to make available a mind boggling quantity of data within the next 2 or 3 years. Although Indian scientists did not participate in the sequencing of the human genome, it is widely expected that we can contribute significantly towards making sense of the more than 3 billion alphabets of the human genome. This of course will require great expertise with computers. What then can be a more retrograde step than to make biology and computer science as mutually exclusive subjects for our students?

An alarming decline in the numbers of students opting for science and the impending dearth of trained manpower to sustain S&T activities of such a large country, have emerged as serious challenges facing the Indian scientific community. A variety of organizations such as the Homi Bhabha Centre for Science Education, the Indian Academy of Sciences, the Jawaharlal Nehru Centre for Advanced Scientific Research and the Department of Science and Technology, Government of India, have launched massive programmes to encourage bright young students to opt for a career in science. Whether or not these programmes will yield the desired results is a moot point but seemingly trivial steps such as the one taken by the CBSE board in making computer science and biology mutually exclusive, will surely wash away any benefits that might accrue from these efforts.

I am very fond of watching so-called mud dauber wasps tirelessly build little earthen pots, fill them with caterpillars, lay an egg and seal the pot. If one makes a hole at the bottom of the pot, the caterpillars will fall out but the wasp will for ever keep attempting to fill the bottomless pot, not realizing that something is amiss. Evolutionary biologists explain this apparent 'stupidity' of the wasp by pointing out that during the course of its evolutionary history, the wasp never had to encounter mischievous scientists who make holes at the bottom of their earthen pots. Those of us who work towards making science an attractive career for young minds will, however, do well to watch out for agents such as the CBSE that can make holes in pots that we are attempting to fill!

RAGHAVENDRA GADAGKAR

Centre for Ecological Sciences,
Indian Institute of Science,
Bangalore 560 012; and
Evolutionary and Organismal Biology Unit,
Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur,
Bangalore 560 064, India
e-mail: ragh@ces.iisc.ernet.in