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Making connections

global health at duke: part IV in a series

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I am a biologist by training, but I do not think that biology, or medicine, or any of the life sciences, will solve global health problems by themselves.

Take, for example, the issue of vaccinating children against preventable diseases. Several decades ago, scientists at Duke developed a measles vaccine, yet over 500,000 children still die every year of measles. A polio vaccine has almost eradicated the disease, but polio vaccinators were recently driven out of Pakistan for fear they were sterilizing children. Whether an inadequate health infrastructure or cultural distrust causes the problem, a multidisciplinary approach to reducing deaths from vaccine-preventable deaths is essential.

For many people, a multidisciplinary approach conjures up images of a team of many people working together on a particular project; nurses and physicians, historians and computer specialists, students and faculty, all bringing expertise to bear on a specific problem, whether it is working with street children in Tanzania or HIV-positive women in India.

Those interdisciplinary working teams are wonderful, and I have been part of a few of them. But I also believe that every individual working in global health needs to foster their own intellectual connections across disciplines.

So, for example, when I teach a biology class on AIDS, I teach the classical scientific process for identifying the causal agent of a disease as first described by Robert Koch in the 1870s and still used today. However, if understanding Koch's principles were all that were required for a community to accept that HIV causes AIDS, we would not have had the last seven years of furious international debate over the contention by President Thabo Mbeki of South Africa that "a virus cannot cause a syndrome."

To fully understand the AIDS crisis in South Africa, to develop any successful health interventions for its people, one needs to understand not only the biology of AIDS but also the history of colonialism and apartheid, and the hope of an African Renaissance. By teaching students the biological intricacies of retroviruses and the social context in which they thrive, I encourage them to avoid compartmentalization of their learning and intellectual activities and to see the problem through the lens of many disciplines. Duke explicitly encourages this sort of intellectual connection-making for undergraduates through programs such as Focus and the many certificate programs on campus, both of which have new Global Health offerings.

Duke's emphasis on global health recognizes that research is strengthened when natural science, social science and humanistic understanding are not divorced. Cultural competency is required for community acceptance of new technologies. Ethics and engineering should not be strangers. Evolutionary analyses should shape vaccine design.

Don't get me wrong, disciplinary depth is necessary, but so is being able to see how different disciplines need each other to solve challenging questions. And in the end, people who have this kind of intellectual curiosity about making connections between disciplines turn out to be the very sort of people who make excellent interdisciplinary team members.

This summer I worked in Kenya with 16 Duke undergraduates. While some of them were biology majors and some are planning to go to medical school, the group also included students majoring in religion, economics, cultural anthropology, human rights, international comparative studies and biomedical engineering. This group continues to work as a team back at Duke, each bringing their disciplinary knowledge and passion to a joint project. They even recruit new faculty as advisers when they need new expertise.

This problem-based, team-based approach to applying knowledge in the service of society is a powerful way for students to internalize learning, connect their personal passion with their academic coursework and develop the collaborative skills that are necessary for global health projects.

The cross-fertilization of ideas and ability to work with people of different backgrounds is critical for the next generation of leaders. I am excited to be teaching at a school that encourages students (and faculty) to actively pursue these intellectual connections, within our own disciplines, on our own campus, in our community and across our globe.

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