

# Uniting the world through science: A view from academia

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International collaborations have become increasingly important for scientific research. According to a 2016 news report in *Nature* magazine, the proportion of publications with authors from different countries increased from 13.2 per cent to 19.2 per cent between 2000 and 2013. This varied by discipline; nearly 53 per cent of astronomy publications had international authors, and over 20 per cent of papers for biological sciences, geosciences, mathematics, and physics were multinational.

Many factors support the growth of international research partnerships. There is a need to share complex equipment such as the Large Hadron Collider beneath the France–Switzerland border near Geneva or the Gran Telescopio Canarias in Spain. (This is probably why fields like astronomy and physics have so many international collaborations.) The need to access research locations of interest — natural habitats of certain species of animals or Antarctic glaciers, for example — provides another incentive for investigators to work with colleagues overseas. The increased convenience and reduced cost of travel has also encouraged people to share ideas and projects. In addition, international co-ordination is necessary to address global challenges, including climate change and infectious diseases like bird flu, Ebola, or HIV.

There are numerous and remarkable opportunities in pursuing partnerships with colleagues across the world, but there are also challenges — finding support is one of the major obstacles.

To justify and garner backing for public investment in science and technology, universities often have to promote national interests, which brings up the question of how international scientific collaborations benefit each researcher's home country.

In 2013 when I became president of Yale University, I announced the Yale Africa Initiative during my inauguration. I felt strongly, and continue to believe firmly, that Yale's engagement with Africa would enrich our university, our country, and even the world. This is particularly true when it comes to conducting research to address pressing global issues.

For example, Ann Kurth, dean of the Yale School of Nursing, is conducting health research in Kenya, a leader in innovative approaches to HIV prevention and care. She has collaborated with Kenya's Ministry of Health, the University of Nairobi, Kenyatta National and Referral Hospital, and several non-governmental organisations. These partnerships serve the interests of the US, Kenya, and many other countries. Dean Kurth is focused on increasing the uptake of evidence-based HIV prevention and testing, and on linkage to care. Her work is centred on youth populations, in particular adolescent girls and young women, and high-risk populations such as people who inject drugs. In one of her US National Institutes of Health-funded studies, she and her international collaborators are examining the preferences of adolescent girls and young women for different HIV testing services. They study if the girls and women preferred self-testing, staff-aided testing, or a referral to a healthcare facility. Her findings will inform the *Illustration*: John Nyaga Ministry of Kenya about best approaches to bring an end to HIV, which is one of the most important public health goals of many countries — including the US. Dean Kurth and her colleagues in Kenya are bolstering health in each investigator's nation and worldwide.

Outside of addressing immediate global challenges, international research partnerships also plant the seed for a better future through educating students who will shape the world in the years to come. Yale students benefit greatly from participating in a learning environment that draws on talents and perspectives from all parts of the world. Research projects that extend across borders demonstrate to students how goodwill and understanding are built between diverse cultures. This is beneficial for all our students and communities.

Recently, former US secretary of state John Kerry convened a nonpartisan conference at Yale University to set an agenda on climate change. Thousands of Yale students, faculty members, staff, and alumni heard from former US secretary of state James Baker, Paris Mayor Anne Hidalgo, California governor Jerry Brown, World Bank Group president Jim Yong Kim, actor and environmental advocate Leonardo DiCaprio, and chief executives and top policymakers attended. By witnessing discussions that transcended national and disciplinary boundaries, students learned that you can come together to find solutions for global challenges even if you are not from the same political party or grew up in similar surroundings. Students learned that even if you do not agree on everything, you can find common ground to conquer a shared challenge through discourse based on scientific findings and data-drive decisionmaking.

Across campuses worldwide, promising new research is yielding insights into a host of urgent issues: Infectious diseases, energy consumption, food security, and more. Scientists have a unique opportunity to demonstrate to the world that international collaboration is at the heart of global prosperity.

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Peter Salovey is the president of Yale University