

# The Internationalization of the University

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Thank you, Artemis (Zenetou), for your warm introduction. I would also like to thank the Consul General of the United States Mr. Hoyt Brian Yee and President Richard Jackson for their participation and support of this event. I am grateful for the invitation of Ambassador Daniel Speckhard and the U.S. Embassy to represent the United States in the Great Ideas series of lectures. And I would like to thank Artemis Zenetou of the Fulbright Foundation of Greece and Epaminondas Farmakis of the Niarchos Foundation for their generous support of this event. It is a pleasure to be with you. My topic for this evening is the internationalization of the university.

It is now widely understood that the world has become smaller and more interconnected. The revolution in communications technology has brought the world closer together and changed the way we think about it.

The movement of capital across borders is now instantaneous, and the movement of products, people, and, unfortunately, pollution is freer and faster than ever before. These facts make comprehensive governance of the economy impossible at

the level of the nation-state. International institutions are needed to regulate trade, capital flows, and environmental degradation. Isolation is not an option.

Cross-cultural influences have always been with us, but today they are more powerful because of their immediacy. Because we access the same web sites and television broadcasts, see the same advertisements and buy the same products, many fear a growing homogenization of cultures and values. The incipency of a “global” culture has precipitated, in many parts of the world, a reaction to protect “local” values, heightening tensions among neighboring ethnic, religious, and cultural groups. Finding the right balance between the global and the local is one of the challenges of our time.

These developments create tremendous opportunities for the universities of the world. And universities are responding. In one respect, the internationalization of the university is an evolutionary development. Yale, for example, has drawn students from outside the United States for nearly two hundred years, and international issues have been represented in its curriculum for more than a century. But internationalizing the university is also a revolutionary development – signaling the need for transformational changes in the curriculum of the modern university, the flow of students across borders, the scope and breadth of international collaborations in research, and the engagement of the university with new audiences. Let me discuss in turn each of these aspects of the emerging global university.

### **The Curriculum**

When I speak of the emerging global university, I envision a curriculum permeated by awareness that political, economic, social, and cultural phenomena in any part of the world can no longer be fully understood in isolation. And the curriculum in the social sciences, the humanities, and many of the professions has already begun to adapt. Take my own field of economics. Thirty years ago, I taught a course entitled “The Structure and Performance of American Industry.” It was a standard topic in the U.S. economics curriculum throughout the nation. Today, there is no such thing as an American industry. Every sector of the economy is open to international competition. When students are taught to assess the structure and performance of an industry today, they must analyze global rather than national markets and weigh the strengths and weaknesses of global competitors. Supply chains, too, are rarely confined within one nation; they are thoroughly global. The price of concrete in New Haven, Connecticut is at record levels because of the volume of construction in China and Dubai. Such complete economic interdependence did not exist thirty years ago.

I also used to teach a subject called “Economic Regulation.” It focused on the means used by national governments to intervene in markets and influence the behavior of private, for-profit companies. Among the cases studied were the regulation of public utilities, transportation, and environmental pollution. Today, even this subject cannot be taught without reference to global conditions. For example, in the 1970s, and even up to 1990, policy discussion about air pollution focused almost entirely on the sulfur dioxide, nitrogen oxides, and related particulates emitted by power plants and

motor vehicles. Their effects were largely local and regional, and national regimes for their regulation proved to be an effective solution. Today, courses in environmental economics focus instead on the emissions of carbon dioxide and related greenhouse gases, where the effects are entirely global, and where global regulation is essential if we are avoid the severe economic, social, and ecological disruption caused by the accumulation of greenhouse gases in an atmosphere that is shared by the whole planet.

To cite just one more example, a decade ago the required first year course on civil procedure at the Yale Law School covered only the procedures of the American courtroom. Today, every student is required to acquire a basic mastery of procedure in Europe as well.

I could give dozens of similar examples. Suffice it to say that the curriculum of the world's leading universities is adapting quickly to the growing interdependence among nations.

Why is it important that the curriculum adjust to the changes in the world that we are confronting? Global security is threatened by instability in the Middle East and by persistent terrorism that strikes almost randomly at civilized peoples around the world. Global prosperity is threatened. The global free trade regime that has brought hundreds of millions out of poverty in the past quarter century is in jeopardy because of the parochialism of nations unable to see the common good. And our global environment is threatened. Unless we resolve to cooperate and do something about it,

the biodiversity of the planet will continue to diminish at an alarming rate, and global warming will transform the conditions of life and livelihood around the world.

Clearly, in this increasingly interdependent world, we need to understand each other better. Can Palestinians and Israelis coexist in peace? Why does Al Qaeda continue to attract young people willing to kill themselves and blow up trains, planes, and buildings? Why do Europeans and Americans refuse to open their agricultural markets, thus impeding the continued liberalization of trade that has contributed so much to the progress of developed and developing countries alike? And why isn't America leading the world's efforts to reduce greenhouse gas emissions rather than dragging its feet?

Increased interdependence requires that the leaders and citizens of tomorrow have cross-cultural awareness, a trait that Americans in particular have historically lacked. In both their private and public lives, the students of today will find that the outside world cannot be ignored. To an unprecedented extent, the careers of the next generation will be global in scope, whether in business, law, health care, or education. Students need to be prepared for interaction around the globe, in the personal challenges they confront as well as the public challenges we face together.

To confront these challenges, students will need to learn all the skills required of them in the past, and one more. As before, they will need to develop a capacity for close reading, critical and independent thinking, clear and effective writing, and quantitative and scientific reasoning. And they will need one essential new skill: the

capacity for cross-cultural understanding. They will need the ability to recognize and appreciate that those from other nations and other cultures see the world differently, hold different assumptions and often reach different conclusions even when presented with the same facts. Without this capacity, students will not achieve their full potential in the inevitably global careers they will pursue, nor will we collectively realize the best aspirations of humanity in the interaction among nations.

### **The Flow of Students Across Borders**

These observations lead naturally to my next point: perhaps the most dramatic adaptation of universities to globalization has been the increased flow of students across borders. Universities in Europe, Asia, Australia, and North America are seeking students from around the world to represent the entire spectrum of cultures and values on their campuses, and they are sending their own students abroad to prepare them for global careers. The flow of students in both directions will go a long way to increasing the capacity for cross-cultural understanding.

Over the past three decades the number of students leaving home each year for study abroad has grown at an annual rate of nearly 4 percent, from 800,000 in 1975 to more than 2.5 million three decades later. Most travel from one developed country to another, but the flow from developing to developed countries is growing rapidly. The reverse flow, from developed to developing countries, is also on the rise. Today, foreign students earn 30 percent of the doctoral degrees awarded in the United States and 38 percent of those in the United Kingdom. And the number crossing borders for

undergraduate education is increasing as well, to 8 percent of the undergraduates in America's Ivy League institutions and 10 percent of all undergraduates in the U.K. In the United States, 20 percent of newly hired professors in science and engineering are foreign-born. In China, the vast majority of newly hired faculty at the top research universities received their graduate education abroad.

Universities are also encouraging domestic students to spend part of their undergraduate experience in another country. In Europe, more than 140,000 students participate in the Erasmus program each year, taking courses for credit in one of 2,200 participating institutions across the continent. And in the United States, institutions are mobilizing their alumni to help place students in summer internships abroad to prepare them for global careers. Yale and Harvard have led the way, offering every undergraduate at least one international study or internship opportunity during their four years and providing the financial resources to make it possible. At Yale, we have created a superb infrastructure of serious summer work internships in seventeen cities: Shanghai, Hong Kong, Singapore, Delhi, Accra, Cape Town, Kampala, Montreal, Monterrey, Buenos Aires, João Pessoa, Brussels, Budapest, Istanbul, London, Madrid, and Athens. In addition, we send hundreds abroad every summer for immersion language courses or Yale summer school courses taught at partner institutions. We expect that an increasing number of institutions will follow our lead in making an overseas experience available to every student, and eventually in making an overseas experience a requirement for the bachelor's degree.

Universities are also establishing more-ambitious foreign outposts to serve students primarily from the local market rather than the parent campus. The University of Nottingham has a campus in Ningbo, China, and the Sorbonne has inaugurated an extensive undergraduate program in Abu Dhabi. True educational joint ventures are also gaining favor, such as the 20-year-old Johns Hopkins-Nanjing program in Chinese and American Studies, the Duke-Goethe executive M.B.A. program, and the MIT-Singapore alliance, which offers dual graduate degrees in a variety of engineering fields. And the newly created King Abdullah University of Science and Technology in Saudi Arabia, soon to be the third best endowed university in the world, is relying on engineering departments at the University of California, the University of Texas, Stanford University, and the Imperial College London, among others, to design its new curriculum and help in the recruitment of faculty.

What are the consequences of the movement of students across borders? Consider this: on the night after the attacks on the World Trade Center, Jewish students at Yale (most of them American) came together with Muslim students (most of them foreign) to organize a vigil. Or this: every year, the student-run Forum for American/Chinese Exchange at Stanford (FACES) organizes conferences in both China and at Stanford, bringing together students from both countries chosen to discuss Sino-U.S. relations with leading experts. The leaders of student groups promoting international collaboration are in touch with each other daily via e-mail and Skype, technologies that not only facilitate cooperative projects but also increase the likelihood

of creating lifelong personal ties. The bottom line is this: the flow of students across national borders--students who are disproportionately likely to become leaders in their home countries--enables deeper mutual understanding, tolerance and global integration. It is reasonably likely that thirty years from now, when the leaders of the world's nations convene, the great majority of them will have spent some of their formative years in another country.

### **International Research Collaborations**

Globalization is also reshaping the way research is done. One new trend involves sourcing portions of a research program to another country. Yale professor and Howard Hughes Medical Institute investigator Tian Xu directs a research center focused on the genetics of human disease at his alma mater, Shanghai's Fudan University, in collaboration with faculty colleagues from both schools. The Shanghai center has 95 employees and graduate students working in a 4,300-square-meter laboratory facility. Yale faculty, postdoctoral fellows, and graduate students visit regularly, and scientists on both campuses participate in bi-weekly seminars by videoconference. The arrangement benefits both countries. Xu's Yale lab is more productive, thanks to the lower costs of conducting research in China, and Chinese graduate students, postdoctoral fellows, and faculty get on-the-job training from a world-class scientist and his U.S. team. The collaboration has led to a dramatic breakthrough in the technology of generating random mutations in laboratory mice,

which has the potential to reduce significantly the cost of studying human disease in mouse models.

Yale has a similar facility at Peking University in Beijing, where Professor Xing-Wang Deng directs a program studying the biology of plant systems, aimed at improving crops. Like Xu, Deng is a graduate of the institution where he performs his research. This laboratory is of similar scale and comparable impact; Professor Deng won the prestigious Kumho Prize in plant biology for the collaborative research undertaken there.

Of course, international collaboration in science is not entirely new. Particle physicists have been collaborating in large numbers for decades on experiments at major national or international facilities like CERN and Fermilab. But this development of permanent joint research partnerships between two universities is relatively novel. In the Yale examples that I have cited, the collaborations took root because of personal relationships that linked Yale investigators to their undergraduate alma maters. It is only a matter of time before China starts to set up similar facilities for outstanding foreign scientists who have no prior connection to the country.

### **New Audiences**

The same advances in telecommunications technology that have created the phenomenon we call globalization offer substantial opportunities for the global university to expand its educational mission.

We have already seen new technologies enable transformational changes in scholarly communication. To consult the periodical literature in humanities and the social sciences, one has only to go on line to access journal articles, bibliographies, and citation data bases linked to the original articles. The natural sciences are following suit, gradually overcoming the impediments to online publication imposed by monopolist publishers of the most prestigious journals. In fields like economics and physics, no one waits for publication; pre-publication versions of new papers are posted, distributed, and read worldwide years before they appear in journals. Indeed, the traditional journals in these fields are no longer a means of communication; they are merely a means of certifying the quality of papers through rigorous processes of review.

The Internet offers a whole new range of possibilities for universities seeking to expand and redefine their traditional mission of disseminating knowledge through publication. Harvard has committed to the online publication of the scholarly work of its faculty. Whether this ambitious strategy proves to be a substitute for or a complement of the traditional medium of print publication, it will achieve one radical objective: it will make original scholarly material universally available, free of charge.

Many universities, including Yale, have begun to make their valuable collections of art, rare books, and manuscripts widely available for study by digitizing them. We have only begun to appreciate the potential of this development.

MIT has taken a similar and highly successful approach to the dissemination of the materials used in 1800 of the courses it offers. MIT instructors post online their

lecture notes or outlines, reading lists, problem sets, exams, and other assignments. There is at present no support for students who want to “take” these courses. Instead, the site is accessed by students and adult learners who wish guidance in their own self-study, and, in equal numbers, by secondary school or college teachers who wish to improve their own courses by making use of, or taking inspiration from, the material used at MIT. The site has approximately one million visitors per month.

These opportunities to make both scholarly publications and course materials widely and freely available are impressive. Even more transformational is the potential that new communications media afford universities to expand and redefine their traditional mission of disseminating knowledge through teaching. These opportunities for reaching entirely new audiences range all the way from creating podcasts of occasional lectures to mounting and supporting credit-bearing courses to offering online degrees. At the far end of the spectrum are for-profit vendors, such as the University of Phoenix, who offer a wide array of courses and degrees and serve hundreds of thousands of paying customers.

What seems ultimately more promising are the measures taken by some of the world’s leading universities to reach wider audiences. The School of Public Health at Johns Hopkins University covers nearly the whole spectrum of possibilities. The School offers masters degrees for a limited number of students, who pay full tuition to take 80% of their courses online and 20% on the Johns Hopkins campus in Baltimore. The School also offers online customers smaller suites of specialized courses, for credit

toward certificates but not accredited degrees. And Johns Hopkins has posted, free of charge, another group of courses for wider dissemination.

Johns Hopkins is just one of a number of leading universities that have taken a step beyond MIT's lead in the area of open courseware, posting not only course materials but videotaped lectures as well. The Indian Institutes of Technology have a significant number of courses posted, and the lectures given at one IIT can be taken as courses and counted toward the degree requirements at another IIT. The University of California, Berkeley also has a number of courses posted for free public access.

Last December, Yale posted the first seven of a contemplated suite of thirty undergraduate courses. These Open Yale courses not only include all course materials and a complete set of lectures in high-quality video, but the lectures are also transcribed, and the searchable text has been made available for ready translation into other languages. A novel feature of the Yale offerings is that we are not simply posting these courses and waiting to see who uses them. We have established partnerships with universities around the world, who are using all or part of our courses in their own undergraduate programs. Our partners include the University of Tokyo, Waseda University, Fudan University, the University of Bahrain, Jimma University in Ethiopia, the University of Ghana, the Buenos Aires Institute of Technology, and Monterrey Tec. We have about 160,000 visits per month to the Open Yale course website; 60% of these are from outside the United States.

## **Conclusion**

In every nation, universities play a critical role in providing the human capital for business, government, and civil society, and the research generated by universities helps to drive the economy. As I have illustrated, internationalization can enhance these contributions that universities make to the wider society. By adapting our curriculum and encouraging the flow of students across borders, we can better prepare the next generation for leadership and citizenship in an independent world, developing in them the capacity for cross-cultural understanding that will be so important for the future peace and prosperity of the planet. By encouraging international collaboration in research, we can accelerate the advance of science and technology that will improve our health and material well-being. And, by utilizing modern communications technologies, we can provide the benefits of education to a far larger fraction of humanity. Such is the future of the global university.

