

demics? Should they be required to learn the national/local language or are they allowed to teach in English? Should they be offered the same contractual arrangements as local staff?

Among such important questions, there is one that is of primary importance for academic life: should international faculty be deeply integrated into the general university environment (bearing all related costs and enjoying all associated benefits), or should they be placed in a kind of “international ghetto,” with special conditions where competitive “international standards” are maintained? In some countries (such as Australia, Canada, or the United States), this question does not arise. In many others, however—such as China, Russia, and Saudi Arabia—this question is of great importance and does not have an obvious answer. Deep integration of international faculty into “ordinary” university life should contribute toward improving the research and teaching culture, exposing the host institution and local academic community to new perspectives, and generally increasing diversity. At the same time, there may also be risks associated with this process, including the possibility of social tensions between international and local faculty, and low levels of satisfaction among international scholars, due, for example, to nontransparent bureaucratic rules that dominate in many academic systems.

CONCLUSION

International faculty are an increasingly important part of the global academic environment of the twenty-first century. Part of both the symbolic and practical aspects of internationalization, international academics constitute a diverse subset of the global academic labor force. At the top, distinguished senior professors are recruited by highly ranked research universities worldwide. Elsewhere, many international faculty are a necessary part of the teaching staff in countries with shortages of local academics. The motivations for institutions—and countries—to recruit international academics vary, as do the reasons why individuals seek positions outside of their home countries. One thing is clear: international faculty are a growing and increasingly important part of the global academic labor force, bringing diversity, new perspectives, and skills wherever they go. ■

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Reframing Global Engagement

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REVIEWING ASSUMPTIONS AND SCENARIOS

At a time when walls are being built up and borders closed down, higher education is facing new challenges in its role towards the realization of an open, democratic, and equitable society. Recent geopolitical events and intensified populist tendencies are promoting a rejection of internationalism. Support for open borders, multilateral trade, and cooperation are weakened, globalization is criticized, and nationalism is looming. Brexit, the prospect of a disintegrating European Union, and of the United States turning its back on the world create waves of uncertainty in higher education regarding international cooperation and the free movement of students, academics, scientific knowledge, and ideas. At the same time, China is launching new global initiatives such as the “One Belt One Road” (or “New Silk Road”) project, which could potentially span and integrate major parts of the world across Eurasia, but likely on new and different conditions, also for higher education.

These changes require a critical review of our assumptions regarding globalization and the international development of higher education. Could we have imagined, a decade ago, the possibility of a less interconnected and integrated world? Definitions of globalization were inherently progressive; they referred to the widening, deepening, and speeding up of worldwide interconnectedness, with growing interdependence and convergence between countries and regions. But serious warnings have been given along the way, signaling notably the risks of inequality and of globalization generating not only winners, but also losers.

In fact, a decade ago, in the OECD publication *Four Future Scenarios for Higher Education*, the one entitled “Serving Local Communities” mentioned as key drivers of change “a backlash against globalisation. [...] growing skepticism in regard to internationalisation in the general population for a variety of reasons, including recent terror attacks and wars, concerns about the growth in immigration, frustration about outsourcing and the feeling that national identity is threatened by globalisation and foreign influence.” Further, it mentioned ambitious new military research programmes launched by governments for geo-strategic reasons, and security classification given to an increasing number of research topics in natural sciences, life sciences, and engineering (OECD, 2006, <https://www.oecd.org/>

edu/ceri/38073691.pdf, p. 5). While this scenario, at the time, was not seen as a very likely direction for change, a decade later it is exactly the one that is unfolding, including the recently announced multibillion EU fund to stimulate defense-related R&D.

Growing skepticism against internationalization can be heard in public and political debates on trade, open borders, migration, or refugees, and indeed also inside academia. Critical voices retaliate against internationalization as an elite, cosmopolitan project, against the use of English as a second language, against global rankings and the resulting global reputation race with its annual tables of losers and winners, against the recruitment of international students for institutional income, and other forms of “academic capitalism.”

GLOBALIZATION, INEQUALITY, AND HIGHER EDUCATION

Scholars such as Thomas Piketty in economics and Branco Milanovic in sociology, developed our understanding of the paradoxical outcomes of globalization. They analyzed that while economic and social inequality has decreased at the global level, mostly due to the growth of Asian economies, notably China, it has increased within certain countries and regions. To quite an extent, these patterns are reflected in higher education.

Decreasing global inequality results from the rebalancing effect of China’s rise on the global higher education and research scene, as is demonstrated by its share in world expenditure on R&D and its world share of researchers (both in second position after the United States and Europe respectively). But the resulting competition leads to a stronger concentration of resources in fewer hubs, thus creating bigger inequalities and contributing to the further stratification of the higher education landscape in Europe. Global inequality also decreases as student numbers explode around the world, more than half of them in China and India alone. At the same time, however, public financial support for higher education is under pressure in many Western countries. The American model with important private contributions is increasingly followed, while strongly criticized at home on issues of equity and decreasing value for money. The importance of higher education in accounting for income differences is decreasing and family background and social connections may matter more, especially in societies that are already close to the upper limit of educational participation.

GLOBAL POSITIONING AND LOCAL COMMITMENT

Thus, while global inequalities in higher education tend to decrease, its potential to compensate for increasing inequalities in rich countries, i.e. its meritocratic role, is called into question. The resulting pressure on the sector is twofold:

enhanced competition at the global level and a growing critique on local commitment and delivery. Especially the pursuit of global positioning in rankings is criticized for jeopardizing universities’ national and local mission and for separating them from society, as a cosmopolitan academic jet set.

A decade ago, it was already clear that globalization was creating economic imbalances with detrimental effects on social cohesion, and that it was necessary to rebalance globalization. Universities should then have broadened their mission for internationalization, to address migration and social exclusion and be more inclusive; to redefine their social contract in a globalized context, i.e., to enhance local access for minority students and embrace diversity as the key to success in a global knowledge society; and to become truly international and intercultural learning communities where young people can effectively develop into global citizens.

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SILK ROADS TO THE FUTURE

Some universities succeeded better than others did, yet no one anticipated the problems we are facing today. In Europe, these were unimaginable in our optimism during the heydays of internationalization following the fall of the Berlin Wall, and even in the years after 9/11. Thinking about the way forward, we are presented with an array of big questions, notably regarding the impact of the European Union, the United States, and China on the higher education landscape.

The celebration of the 60th anniversary of the Treaty of Rome on March 25th was characterized by fierce debates on the scenarios for Europe’s future, some more promising for higher education than others. Meanwhile, EU–China cooperation is being established through research hubs and higher education agreements, and China’s impact on the global higher education landscape is growing. How will China’s values impact higher education, and do we actually understand these values at all? How can we prepare our students for safe travels on these new silk roads toward the future? This is another major challenge for internationalization; to enrich our vision and understanding of the world, to widen our focus from being predominantly or even exclu-

sively Western, to open it toward a new history. ■

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United States, Europe, and Asia: Diversity in Nobel Prize-Winning Affiliations

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What factors promote the reputation of a university? As “research laboratories,” universities, research institutions, or even companies support future Nobel Prize winners by giving them the possibility to conduct research. In return, these institutions may later profit from the laureates’ reputation. However, in many cases, the institution with which a Nobel laureate is affiliated when receiving the award is not identical to the institution(s) where he or she did excellent work in the past. Which of these institutions is really supporting excellent science is therefore debatable. The last researcher, in the literature, to focus on research institutions where (future) Nobel Prize winners did their scientific publications leading to the Nobel Prize, was the sociologist Harriet Zuckerman, in 1976. She included a ranking of institutions based on data from 92 US-“Nobelists” in her book *Scientific Elite. Nobel laureates in the United States* about Nobel laureates from 1901 to 1975.

In our study (Schlagberger et al. *Scientometrics*, 2016, DOI: [10.1007/s11192-016-2059-2](https://doi.org/10.1007/s11192-016-2059-2)), we evaluated all 155 Nobel laureates between 1994 and 2014 in chemistry, physics, and physiology/medicine. We tried to identify at which institutions Nobel laureates did their prize-winning work. We based our study on an analysis of biographical information on the laureates. Recently, we extended the analysis to Nobel laureates from 1994 to 2016 (n=170).

COUNTRY RANKING OF THE LAUREATES’ PUBLICATIONS LEADING TO THE NOBEL PRIZE

In our study of the prize-winning work and the countries where that work was done, we found that, between 1994 and 2016, the United States came first (n=94.5), followed by the United Kingdom (n=20.5), and Japan (n=12.5). France and Germany ranked close to each other, with n=8 and n=6.5 respectively. The numbers are not integers because we fractionally counted if the laureates were affiliated with more than one country.

NOBEL LAUREATES’ DECISIVE WORK AT FAMOUS RESEARCH INSTITUTIONS

The United States also dominates the institutional ranking, with, on top of the list, the University of California, Berkeley and the research institute AT&T Bell Labs in Murray Hill, New Jersey (both n=6); Harvard University (n=5) and the Rockefeller University (n=4). Notably, only physics prize winners did their excellent work at the AT&T Bell Laboratories.

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The second most important country is the United Kingdom, where the Medical Research Centre, Cambridge (n=5) and the University of Cambridge (n=3) count the most Nobel Prize-decisive work, in chemistry and medicine/physiology. There is a significant variety among British “Nobelized” universities, with the University of Birmingham, the University of Edinburgh, and the University of Manchester all counting n=2; and University College London, the University of Nottingham, the University of Oxford, the University of Sheffield, and the University of Sussex counting n=1 each.

In France and Germany, well-known research institutes have hosted laureates when they did their decisive work. In France, we identified the Institut Pasteur, Université de Paris, Université de Strasbourg (all n=2), and École Normale Supérieure (Paris) and Institut Français du Pétrole, Rueil-Malmaison with n=1 each. Germany is represented by two universities, the Ludwig-Maximilians-University of Munich and the Albert-Ludwigs-University of Freiburg (both n=1), and by non-university research institutions such as the Eu-