

ISSUES AND EVENTS

Europe Moves toward Coherent Higher Education, Competes for Students

Europe wants you. Germany, the UK, the Netherlands, and other countries are keen to grab a bigger share of the world's nomadic student population. And increasing competition for foreign students is, ironically, contributing to growing cooperation at the local, national, and international levels to make the hodgepodge of degree programs across Europe mutually understandable and compatible.

Restructuring in higher education has been building for about a decade, becoming more concerted since the Bologna Declaration was signed two years ago by education ministers from 29 countries—the 15 members of the European Union (EU) and 14 others. The declaration is a voluntary pact to adopt cross-border credit and degree accreditation systems, boost the image of European higher education in the international eye, and—causing the most heated debate—establish bachelor's/master's systems modeled on those in the UK and US. The declaration encompasses all disciplines, from the physical and social sciences to architecture and law, and has a target compliance date of 2010.

Enticing foreign students

Internationalization of higher education, says Corry Klugkist of Nuffic, an agency that, among other things, recruits foreign students to the Netherlands, “broadens the outlook, thus raising the quality. It creates links with the future leaders of different parts of the world and, of course, in the long run, the economic relations are expected to benefit from these contacts.” Educating foreigners enriches the host country academically, culturally, politically, and financially, the thinking goes. In some fields, including physics, it provides sorely needed students.

Over the past decade or so, student exchanges within the EU have become commonplace. More recently, the EU has seen an influx of students from eastern Europe and the Baltic countries, and now some countries are courting foreign students, especially from Asia and South America.

To draw students, countries advertise their educational systems, offer

In the debates on how to reform Europe's higher education systems, the aims are faster, internationally recognized degrees that will be accepted by employers, increased flexibility of study programs, and global competitiveness.

stipends, pass laws to ease visa and work restrictions, and help foreigners settle in. The French government, for example, set up EduFrance in 1998 to recruit and follow up with house hunting and other services. And study programs in English are popping up all over: The Netherlands has more than 500 of them; Finland, 300; Germany, 150; and France, 80.

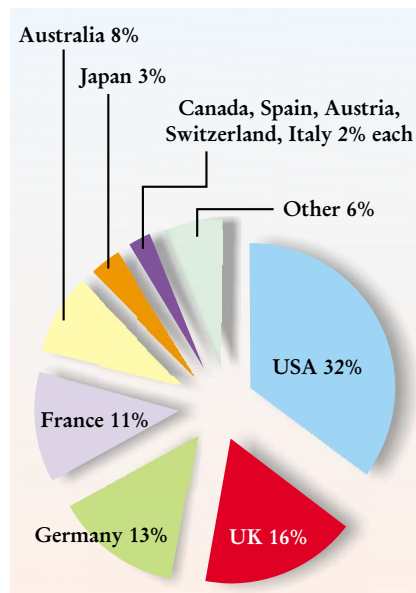
Without a doubt, English-speaking countries have the advantage. The UK gets 16% of the world's globetrotting students, leading Europe, and lagging

only the US, which has 32%, according to the Organization for Economic Cooperation and Development (see figure). The UK is also one of the few countries in Europe that charges tuition—low at £1050 (about \$1500) a year for EU citizens—and reaps immediate financial gain from foreign students, whose fees bring in £3.5 billion annually and provide a sizable fraction of some departments' budgets. On 18 June 1999, the day before the Bologna Declaration was signed, Prime Minister Tony Blair launched a campaign to boost the number of foreigners in UK universities and vocational schools: “The targets are a significant increase in the UK's share of the fee-paying market for international students in English-speaking countries,” he said. Australia, notably, has stepped up education marketing and is seen as a key competitor.

But Germany is catching up in aggressively wooing foreign students. In a 1999 paper, *Qualified in Germany*, Max Huber, vice president of the German Academic Exchange Service (DAAD), wrote that Germany “is missing important opportunities to be politically, culturally, and economically influential. Our universities and research institutes are likewise lacking the scientific and academic strength of excellent foreigners. It therefore lies in our national interest to strengthen Germany's position in the worldwide higher education market.”

After getting off to a late start, Germany is introducing many measures to entice foreigners, especially scientists. The measures include government funding for bachelor's and master's degree programs—more widely recognized outside Germany than the *diplom*, which takes up to six years and includes a research project. Research and Education Minister Edelgard Bulmahn announced recently that laws will soon be changed to make it easier for foreign graduates to stay and work in Germany.

And this past February, Bulmahn announced that DM 170 million (\$77 million)—a windfall from a government auction of frequency spectrum use—will fund scientists from abroad to set up research groups in Germany. “There must be an end to brain drain



GEOGRAPHIC DISTRIBUTION of 1.3 million students studying outside of their home countries. (Adapted from the Organization for Economic Cooperation and Development report *Education at a Glance 2000*.) Other sources estimate up to 1.8 million students, and Germany says it has only 8% of them; such discrepancies stem at least partly from differences in who is considered a foreigner and from the fact that the OECD includes only 30 countries.

in Germany. Instead, we want to have brain gain,” she said. “Germany must become more international. Only science and research of the highest level can ensure our future.”

Last year, a program linking individual German research groups in related fields went international, starting with hadron physics. The graduate colleges, as they’re called, aim to give PhD students more guidance, networking opportunities, and international experience than is typical in Germany. Yet another development is the International Max Planck Research Schools for PhD students (see box below).

All this recruiting is limited to neither students nor foreigners: For example, France and Germany have new fellowships for postdocs and faculty—including returning citizens. And France, despite having less brain drain than Germany or the UK, has offices in the US to help French scientists find jobs back home.

The flux should continue at all levels, says Vincent Courtillot, director of research in France’s research ministry, “from the youngest students to professors. People learn another culture and language. It generates new ideas, links, and tolerance. And when they go back, they should be ambassadors.”

Problems of varying degrees

More than anything else, it’s the internationalization of higher education that led to the Bologna Declaration. With university exchanges in-



STUDENT UNION REPRESENTATIVES from 31 European countries met in Göteborg, Sweden, in March to discuss the Bologna Declaration.

creasingly popular, it’s become necessary to compare systems that are often opaque to outsiders. The declaration’s intellectual birthplace is France: In 1998, Claude Allègre, then the minister for education, research, and technology, brought his colleagues from Italy, Germany, and the UK together at the Sorbonne on the occasion of its 800th anniversary, and they penned a declaration that formed the basis of the Bologna Declaration a year later. That may be Allègre’s most far-reaching legacy; he was sacked last year.

Since the Bologna Declaration was signed in 1999, says Lewis Purser, a program manager at the European University Association (EUA) in Geneva, “there is much greater awareness of the need to have coherent reform. It’s a jungle of different types of study programs and diplomas. Before, each country was doing things in its own way, in its own time.”

The plan is to follow “3-5-8” schedules so that it takes about three years to earn a bachelor’s degree, two more for a master’s, and a total of eight for a PhD, making it easy to switch fields or universities, or to return to school later in life—a new idea in Europe. Of shorter duration than degrees in most of Europe now, the bachelor’s is supposed to reduce the dropout rate by serving as a stopping point that prepares graduates for jobs. Because higher education is free in most of Europe, the motivation for governments is clear: Save money both by reducing the number of years students are subsidized and by herding them into the job market faster.

In fact, dovetailing with the job market is something that still needs to be sorted out. “Bachelor’s degrees are not very popular in Finland,” says Tapio Markkanen, secretary general of the Finnish council of university rectors. “The problem is, How do we design our first degrees so that they become labor-market relevant? We don’t see the solution yet.” Hendrik Ferdinande, a physicist at the University of Ghent, Belgium, and coordinator of EUPEN, which is comparing the physics curricula across more than 100 departments in two dozen countries, agrees: “For many of us, it’s a big question mark how industry will react when we deliver the first bachelor’s degree on the continent.” Will industry hire people holding only a bachelor’s degree? Will that lead to a shortage of more highly trained work-

Max Planck Society Launches International PhD Programs

The International Max Planck Research Schools (IMPRS) fit right in with the vigorous efforts by Germany and its neighbors to woo foreign students. Launched last year by the Max Planck Society (MPG), Germany’s foremost research organization, the new PhD programs are intended to stanch brain drain, combat plummeting enrollments in science, and forge long-term international collaborations.

The schools are also intended to tighten the ties between Max Planck Institutes and partner universities, which will bestow the degrees. The idea, says MPG president Hubert Markl, “is to join forces and produce synergies. This offers opportunities from two sides: University doctoral students get easier access to research resources and the Max Planck Institutes get more access to students.”

The first 10 IMPRS programs started up last fall. Half are in physics and related areas: astrophysics (Munich), biomimetic self-organization (Potsdam), cell membrane structure and function (Frankfurt), plasma physics (Greifswald), and polymer physics (Mainz). The plan is to open a total of 25 or 30 schools



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in the next few years, with space for 500–600 top-notch students; about half of the scholarship money will be tagged for foreigners.

“The format of the schools is rather flexible and each school can develop its own structure,” says Reinhard Lipowsky, the spokesman for the IMPRS for biomimetics. “However, the main goal is always the same: to attract good PhD students from abroad.”

In addition to prestige, the schools offer a broader education and more personal attention than is typical in Germany at the PhD level, and courses are in English. In Germany, says Werner Becker, coordinator of the IMPRS for astrophysics, it’s common for PhD students to become “top experts

in their field but often at the cost of the broadness of their education. We intend to make our students more competitive for the international market by giving them a broader education.”

The MPG is spending about DM 3 million (\$1.4 million) on the schools this year, and plans to increase that, but the bulk of costs are paid by the host Max Planck Institutes and their partners. For more information, see <http://www.mpg.de/english/institut/imprs>.

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ers? And there's a twist: One fear is that governments will cut off student subsidies beyond the bachelor's level. No one knows what will happen, says Ferdinande. "But industry is much more supple than universities. It will adapt. There are still fears, because it's something new."

And, while countries where degrees take a long time fear that switching to the bachelor's will degrade their education, places with shorter-duration programs worry that their degrees won't be recognized as high quality. Science and engineering students in England, for example, can choose to go straight to a four-year master's degree, which about a third of all physics students do. The "Mphys" should be recognized, says Gareth Jones, a physicist who represents Imperial College, London, on European issues. "The argument is that the more specialized preparation at high school, the selection of students by universities, and the rather focused curricula justify this."

Whether or not England's four-year master's wins wide recognition, many in the science and engineering communities are pushing to keep a longer straight-through master's option in parallel with a bachelor's/master's degree structure.

Reforms and risks

So far, Italy has made the most drastic reforms. This fall, the country is switching wholesale to a 3-5-8 structure from its traditional higher education system, under which the *laurea* was supposed to take four to six years but often dragged out longer. The number of students has exploded since the 1970s, and so has the dropout rate, to around 60%, says Paolo Blasi, a nuclear physicist and former rector of the University of Florence. "In the new scheme, we expect that at least 70% who attend will graduate. This is important from a psychological point of view." But, he adds, "if we really want to improve the level of education, we need more resources."

The Netherlands and the Flemish

Online Resources Related to the Bologna Declaration

<http://www.salamanca2001.org> The University of Salamanca's Web site includes the Bologna Declaration and a wealth of related documents. In particular, "Trends in Learning Structures in Higher Education (II)" details national and international progress to date.

<http://www.unige.ch/eua> The European University Association Web site has extensive documentation on the Bologna process. The site is under construction, so more information may still be available through its predecessor, <http://www.unige.ch/cre>.

<http://www.esib.org> The National Unions of Students in Europe is following the Bologna process closely, and this Web site provides many useful links. The Student Göteborg Declaration is available at <http://www.sfs.se/steudent2001/sgd.pdf>.

part of Belgium, for instance, are also switching to bachelor's/master's systems. Elsewhere, as in Germany and, to a lesser extent, France, bachelor's and master's degrees are starting in parallel with the traditional systems. Other countries are still just talking.

One danger is that universities will make only window-dressing changes, says Guy Haug, EUA senior adviser and coauthor of the main studies monitoring the Bologna process. Some universities start out making superficial changes "to be in line with the trend or the law—but later they actually change the curriculum." But the biggest threat to higher education in Europe, Haug says, is "transnational" education—by which degrees are typically offered over the Internet and are not subject to local regulations. Such degrees tend to be expensive, and it's hard to gauge their quality, he says. "Is it bona fide education or just a commercial venture?"

Students, for their part, support the Bologna Declaration with some hesitation. "Many countries have long tunnel-

like educations," says Jacob Henricson, who is studying political science in Umeå, Sweden, and is active in the National Unions of Students in Europe (ESIB), an organization representing student unions in 32 countries. "If you choose to stop, you have nothing to show for it. We don't like that. We want to raise the quality in general. We want a credit system, quality assurance, and accreditation." So far, so good. But ESIB, in its Student Göteborg Declaration released this past March, says the Bologna Declaration "failed to address the social implications the process has on students. . . . It is the governments' responsibility to guarantee that all citizens have equal access to higher education, regardless of their social background." Students are not just consumers, explains Henricson. "We have fears that more and more countries are talking about introducing fees."

In the past six months, says Henricson, "there's been a step forward: Students are being included in the process." Henricson was among the student representatives at a meeting in late March in Salamanca, Spain, where university leaders took stock of progress and laid out recommendations for education ministers. ESIB will also be present at the ministers' meeting this month in Prague.

Intense discussion about the implementation of the Bologna Declaration continues at ministerial, regional, and university levels. Says Torsten Kälve-mark, who oversees international developments in higher education for the Swedish government, "Any country with an old-fashioned or peculiar degree structure will run the risk of having problems in relation to other countries, and its students may suffer when their degrees are not understood by foreign employers. If we want to create a competitive common European labor market, a common degree structure will be essential. One can sometimes hear dissenting voices, but on the whole, it has been a remarkably swift change of mind in many quarters."

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Dropout Rate among Chinese Physics PhD Students Seems High; Community Considers Why

With foreign students making up more than half the pool of US physics graduate students, it's not surprising that educators are worried by the seemingly disproportionate number who switch, mid-PhD, into areas such as computer science and engineering. Students from the Peo-

US physics departments are starting to take measures to select students who are more dedicated to staying in physics.

ple's Republic of China (PRC) are the biggest block of foreign students and

are therefore the focus of concern over, and efforts to turn around, this budding trend. "I think that we, as faculty, are frustrated because we see students who could have gone on to a physics career," says Moses Chan, a physics professor at Pennsylvania State University. "And we love