EUROPEAN UNION

# Students Still Face Barriers Across Europe

**BRUSSELS**—In the past few years, the European Union (EU) has removed some significant barriers between its 15 member nations. Goods now move freely between countries without border tariffs, and citizens are free to work in any member state. But one barrier remains stubbornly in place: For EU citizens wishing to study or work elsewhere in the union, a hard-won and much-prized educational qualification in one country may be almost worthless in another.

Member states of the EU have stipulated that they wish to retain complete sovereignty over their educational systems. So there is little the European Commission, the EU's executive in Brussels, can do to enforce any kind of harmonization in qualifications such as bachelor's degrees or Ph.D.s. Instead, the pressure for change has come from the bottom up: from students eager to spend time studying in another country, and from researchers keen to forge links with colleagues in other states.

This impetus has nudged the commission into launching programs of student exchanges and a handful of studies comparing methods of assessing teaching standards in different European countries. But so far these have only succeeded through individual negotiations between faculty members in specific institutions to recognize results gained in each other's courses. "It requires a great deal of discussion and serves only to compare specific study periods," says Barbara Kern of the commission's directorate on education and training. "The lessons of the European Union have been to show just how much easier it is to shift goods rather than people around the single market," says commission spokesperson Bernard Trench.

The commission first began discussing these programs in the mid-1980s, when the problems created by the differing education systems became more and more obvious as the single market grew and other barriers began to fall. With legislative approaches ruled out, commission insiders talked up the need to create a "European dimension" to national education systems. In 1987, they moved from talk to action, launching the European Community Action Scheme for the Mobility of University Students, or Erasmus, to help foster this European dimension. Erasmus has financed more than 300,000 undergraduate students since 1987, and the yearly totals have increased by a factor of 10 since the program began.

Such an ambitious project has, however, thrown up a host of problems, the most serious being the enormous difficulty in getting a student's home university to recognize a period of study abroad as a contribution to his or her qualification. Martin Anders, an Erasmus student from the University of Jena in Germany studying molecular biology at Britain's Manchester University, says that his work will not count formally toward his degree back home. "I will spend an extra year on my studies, but I do not believe the experience will harm my career, and you do learn something," he says.

Rolando Berlinguer of the University of Florence is also doing a year of molecular biology at Manchester: "Most of my teachers in Florence said that work in Manchester could count toward my degree." But by the time he arrived in Manchester last autumn he still had not received formal confirmation of that assurance. "The administrative problems make studying very difficult," he says.

One of the aims of the Erasmus program is to expose students to different educational systems and to gain fluency in a second European language, and for Anders those goals have been fulfilled. "Manchester University is totally different from my university in Germany," says Anders. Teachers are more keen to look at the frontiers of a field, he says. "It's exciting, but people may have problems because they graduate with very specialized knowledge."

Anders, who studied for 3 years in Jena before coming to Manchester, expects to study for a further year and a half at Jena before taking exams for his degree. In comparison, British students typically study for 3 years to obtain a bachelor's degree. Berlinguer also enjoys the contrasts with Italy. "The courses are much shorter and the classes smaller than in Italy," he says. "The teachers are good in Italy, but it is much harder to study."

In spite of the problems, the Erasmus program has generated enthusiasm among European academics and politicians. "All over Europe we are moving toward real exchanges of information and people among institutions," says Phillip Whitehead, a Member of the European Parliament (MEP). "Ten years ago 0.5% of the European Union's student population consisted of students from another member state, but that has risen more than 10-fold to 6%," says Trench.

This enthusiastic response has prompted the commission to launch a new and expanded version of Erasmus, called Socrates. With funding of $800 million between 1995 and 1999, this program plans to sponsor 700,000 students to study in other member states.

Erasmus's success in encouraging exchanges among undergraduates was paralleled with pilot projects to exchange postgraduate students and paved the way for a new program, launched in 1992, to promote exchanges at the postgraduate and postdoctoral level. Called the Human Capital and Mobility (HCM) program, it has funded 3500 young researchers to work in laboratories outside their own country, and although it has encountered many fewer problems than Erasmus because of the tradition of mobility of graduate researchers, national differences have caused a few problems.

John Walsh, who administered the program for

**EU STUDENT EXCHANGE PROGRAMS**

| Program | Dates | Student Numbers | Budget |
|---|---|---|---|
| Erasmus | 1987–1994 | 300,000 undergraduates (all disciplines) | $440 million |
| Socrates | 1995–1999 | 700,000 undergraduates (all disciplines) | Planned $800 million |
| Human Capital and Mobility | 1992–1994 | 3500 postgrads | $490 million |
| Training and Mobility of Researchers | 1994–1998 | 7000 postgrads | Planned $700 million |

Britain's Particle Physics and Astronomy Research Council, says the salary for HCM fellows was pegged to that for researchers in Belgium and adjusted for the local cost of living. But because of the differing status of researchers in different countries, fellows were tremendously well-paid in Britain but rather poorly paid in the Netherlands in comparison with locally paid colleagues. Differences in national tax systems also exacerbated these disparities. A new program, Training and Mobility of Researchers, which replaced HCM last year, aims to solve these problems by defining a target salary for each country that will help reduce the national differences.

Many of the problems students and researchers encounter when they move to other European countries would be eliminated if the universities developed a standard Euro-Ph.D. This notion, promoted by prominent researchers, has not yet gotten off the ground, however. University autonomy in awarding degrees is too hallowed a right to be Europeanized. Indeed, it is so deeply entrenched that graduate students at two key European laboratories—the European Molecular Biology Laboratory in Heidelberg, Germany, and the CERN particle physics center in Geneva—which have long-running graduate programs, still receive their higher degrees through a local or home university.

In the past couple of years, however, the commission has found a niche from which it can influence education without treading on national toes—quality assessment. The trend toward broadening higher education in member states such as the United Kingdom has produced a growing need for standard methods to assess quality across a broad range of institutions, says the commission's Barbara Kern. "It's a potential way of Europeanization without imposing a model," says Diana Green, a pro vice chancellor of the University of Central England who has worked on an assessment pilot project with the Committee of European Rectors. The commission has also carried out a pilot project to test methods of self-assessment and peer review of teaching quality in two subjects at 46 universities and higher education institutes throughout all 15 member countries plus Iceland and Norway, which was completed in December. The working group found that a standard methodology of assessment could work in the different countries, and an advisory group is now exploring ways of extending the work, says Jim Donaldson, who helped manage the project for the commission.

The commission is also making progress on mutual recognition of professional qualifications. A report for the European Parliament published last November recommended ways of recognizing some of the informal networks and agreements that are developing between different countries. The report's recommendations, which were supported by Parliament, can now be developed into European directives that will steer policy changes in the member states. Although the timetable depends on academic goodwill, it is a tangible sign of harmonization, says MEP Robert Evans. The union is making its mark on education, says Whitehead: "The more the EU can fund exchanges of know-how, curriculum planning, and students themselves, the better its money will be spent." Sometime early in the next century, perhaps, Ph.D.s may be able to move around Europe as freely as manufactured goods.

**–Nigel Williams**

CENTRAL EUROPE

# After Communism: Reinventing Higher Education

*For the former satellite states of the Soviet Union, educational reform is a matter of necessity, not choice. Under the communists, education enjoyed high priority, receiving generous funding and elevated status. But to reduce their political influence on students, researchers were hidden away in research institutes.*

*In the economic turmoil of today's Eastern Europe, the generous funding is gone, and educationalists are fighting hard to update curricula and again bring researchers and students into contact.*

## Poland: Teachers Struggle With Low Funds and Morale

**WARSAW**—After Anna J. Podhajska returned home to Gdansk University from postdoctoral studies at the University of Wisconsin a decade ago, she was struck by the contrast between Poland's rigid education system and the smorgasbord of choices available to science students in the United States. She decided to do something about it. During the years when Poland was reinventing itself after the fall of communism in 1989, Podhajska, a molecular biologist, helped establish a new biotechnology program in Gdansk that is now a magnet for students in Poland. "Because changing the old system step by step is so difficult, we decided to create something entirely new here," Podhajska says.

Instead of a restricted and inflexible science curriculum—the typical pattern in Poland—students in the Gdansk program can set individual courses of study under a flexible credit system and even study the potential business uses of biotechnology. Joanna Potrykus, an undergraduate student at Gdansk, says she would like to see other Polish universities try similar innovations to help students "broaden their scientific horizons."

Only a few universities in Poland appear to have followed Gdansk's example, however. With some exceptions—including interdisciplinary programs offered by Warsaw University and Krakow's Jagiellonian University—critics say that Poland's education system remains troubled by the sort of postcommunist inertia found in so many ex–Soviet bloc countries. Adding to the malaise is a pernicious combination of increasing student numbers and declining government support for higher education, which makes reforms doubly difficult. And some of the best and brightest students are turning away from science.

Science education in Poland is still haunted by the ghosts of the old system. Under the communists, Polish science was dominated by a powerful Academy of Sciences. The academy maintained its own institutes, which received the lion's share of research funding, leaving most universities as bit players in the research enterprise. While science reforms in Poland have now

**For more on young scientists in Europe, see *Science*'s Next Wave at http://sci.aaas.org/nextwave/**