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Engineering education world

Contributions are invited for this feature. News items on policies that concern the engineering education world, new courses and curricula either of a unique nature or of international interest, new innovative laboratories and concepts, funding news for engineering research projects involving international participation, special international continuing education courses and news, industry–university interaction, engineering faculty news, and developments in engineering education of international interest. Please send news items and conference information to the Editor-in-Chief. Public relations offices of universities and human resources divisions in industry are requested to contact the Editor with news items concerning engineering education and training.

World

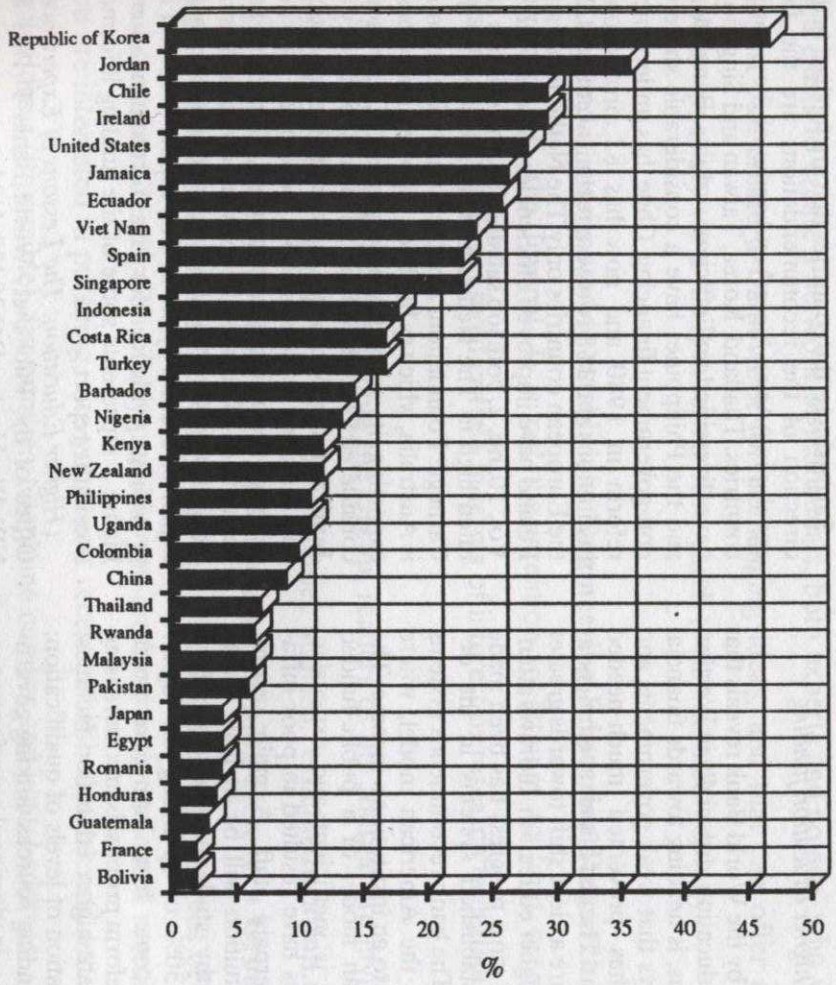
Worldwide crisis in higher education funding

A report published by the World Bank reveals that funding for higher education, especially in Western state-funded systems, is heading towards financial ruin. The report says that weak governments and student activism has prevented much-needed reform of the systems. The gist of the recommendations of the report are a clear shift towards greater private funding of higher education. It draws attention to the fact that most progress has been made outside the old established systems in the developed countries. The bank recommends systems that are similar to the American model, where students contribute to an institution's income. The traditional European model of a public-funded research university is inefficient and expensive. Dwindling resources have resulted in poor infrastructure and underpaid staff. A main recommendation is that tuition will be at least partly borne by the wealthy students who can afford higher education: 30% of spending on higher education should come from non-government sources. The main reform proposals are: increasing the number of private higher education facilities; increased differentiation of levels of qualification; diversification of funding sources; linking government support to institutional performance; improving quality; and redefining the role of governments in education.

Surprisingly, the countries that are furthest in the direction of the recommendations are the fast developing Asian 'tigers' and some of the poorest countries. Thailand, Korea, Taiwan and Singapore have diversified and efficient systems. Bangladesh and the Philippines have a considerable share of non-government financing. Chile, has undergone a reform in 1980 and now has 82 professional institutions and 168 two-year technical colleges. Of the European countries only The Netherlands and Ireland have improved efficiencies. As reported in Vol. 10, no. 2, both job satisfaction and salaries are rated high in The Netherlands in a survey by the Carnegie Foundation. Another innovative country is Australia, which as has been reported is also busy exporting its educational expertise. The report, considered as controversial, is the responsibility of **Jamil Salmi** of Morocco. A team of nine education and industry leaders in both developed and developing countries were consulted. The report has been attacked because it looks underneath the surface of the smug, politicized and impenetrable higher education systems. The report is careful in providing evidence for its recommendations. Figure 1 represents some of the funding information in the report.

(*Higher Education: The Lessons of Experience*, Office of the Publisher, World Bank, 1818H St NW, Washington DC 20433, USA.)

Tuition fees in percent of expenditure of higher education institutions



Share of enrollments in private institutions of higher education

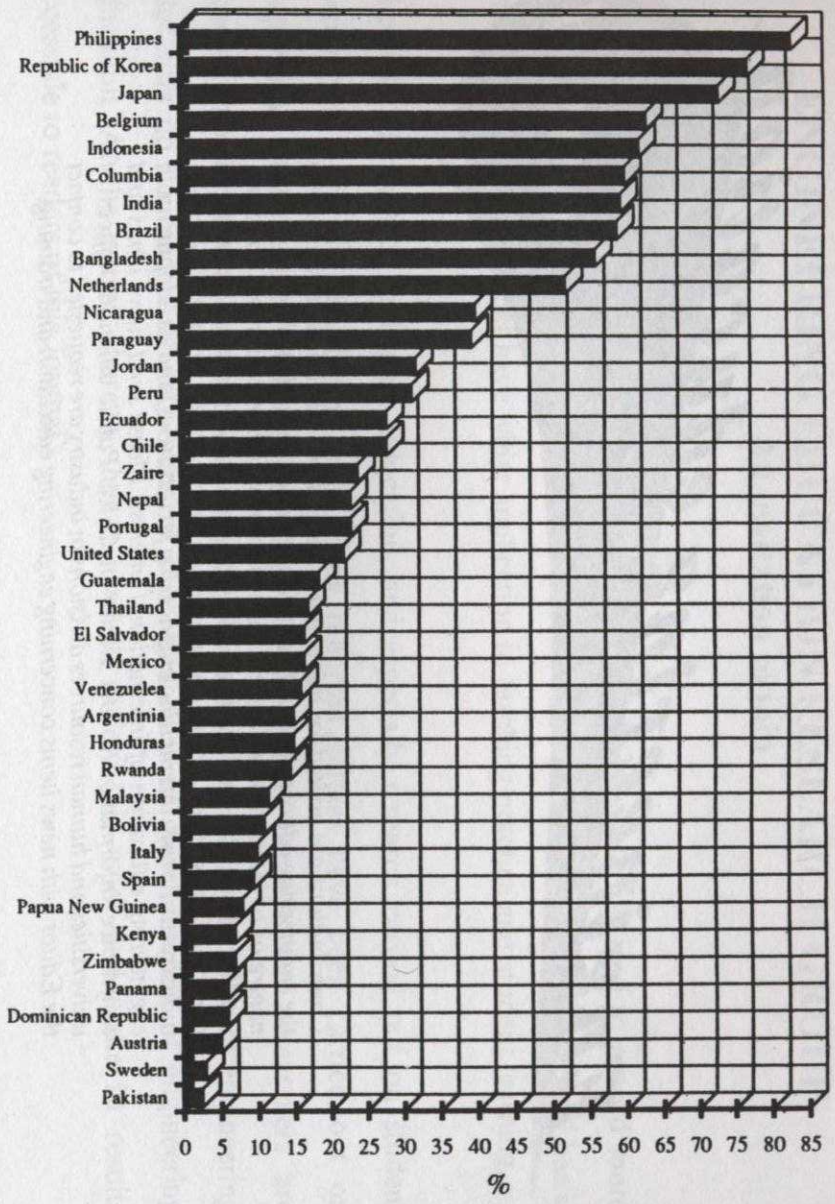


Fig. 1

United Kingdom

Slump in further education student recruitment

Higher National Diploma students in the UK are generally enrolled in two-year courses which either can be taken as an end in itself, or can be used as a stepping stone for continuing on to university degrees. Such courses, mainly in business and technology, are offered both by universities and further education colleges. The Universities and Colleges Admissions Service admits students to higher education institutions which offer about 65% of all HND courses. Many students are referred to such courses if they are unable to pass the admissions requirements. Around 500 HND courses offered by the further education institutions have been hard to fill, partly due to lack of awareness on the part of applicants that the alternative exists. A campaign by the Business and Technology Education Council (BTEC) is now underway to attempt to remedy this situation.

Germany

Funding hinders education developments

The draft budget for construction and revitalization of universities and Fachhochschulen will not be able to cover the needs for developments, especially in the new states of eastern Germany. The budget of a total of DM3.6 bn. is well below the estimated DM4.6 bn. required. Chairman of the science council **Karl-Heinz Hoffmann** said that although state and federal governments recognize the need of reconstruction, there is hardly any chance of improving German competitiveness with the current levels of support. A call has been made for increased support by the federal government for renewal in higher education after the general election in October. One reason for low funding levels is that the economy does not yet produce the tax revenues expected from economic recovery.

Age of entry into university at record high

According to a survey by the Higher Education Information Systems of Hanover, the average age of students entering higher education in the winter of 1993 has reached 22.2 years. This is the highest on record. Reasons for the late entry are given as the high age of school leavers, and the increasing tendency to do an apprenticeship before entering higher education. School leavers with higher education entrance qualifications are averaging 20.4 years of age. Around 40% of first-semester students have a professional qualification, so that they can 'drop back' into a profession in case they drop out of higher education. It should be noted that UK graduates are often the same age as German university entrants. This situation is compounded by the long average sojourn of German students in higher education institutions.

Poland

Polish higher education management criticized

The Organization for Economic Co-operation (OECD) has published a critical report on the management of higher education in Poland. The report was compiled by a team under Professor **Ireneusz Bialecki** of the Center for Science policy of the University of Warsaw. The report is critical of a situation that has only recently been established through the Higher Education Law in 1990. The report is especially critical of the inflexibility of the system towards reform. A professional approach to reform and management of higher education is called for. The report recommends the establishment of state-supported vocational higher education institutions—akin to the German system, a recommendation that is sure to be taken up. Changes made in 1990 have not been able to incorporate the requirements for restructuring higher education that have been exposed in the past four years. Just using inflexible continental models as a guideline is highly impractical with the student number explosion and funding crises.

Israel

A typical income scenario

While funding for higher education has become a world topic (see above), another facet of this subject is the supplementary income of academics, who have sufficient freedom and too low remuneration. The University of Tel Aviv is concerned by a drift of its faculty towards additional income from a private college. The Herzliya College, for management, business, law and technology, draws most of its staff from permanent employees of the university of Tel Aviv. The university is concerned about possible effects on the quality of teaching by the double jobbers. The university is about to reconsider its policy towards outside work in view of new increased pay deals for Israeli professors. This aspect of academic freedom is almost universal. Not everyone has the opportunity for additional work—especially in education. In some countries, e.g. Germany, additional sources of income for academic staff are regulated although difficult to control.

China

Centrally planned élitism

Ninety per cent of the faculty in science and engineering in China will be retiring within the next six years. The Minister for Personnel, **Song Defu**, is determined to produce 100 world-leading scientists under the age of 45, 1,000 other top scientists and 10,000 specialists by the end of the century. In order to achieve this, 100 universities and colleges will receive support from the government to improve education quality, science research and management. Priority is being given to the established universities such as Beijing, Qinghua, Xian Jiaotung, and Fudan and Jiaotung of Shanghai. At present nearly 40,000 scientists below the age of 40 constitute only 3.3% of the total manpower in this category.

Indonesia–Australia

Higher education exports planned

Indonesia is facing a shortage of technical professionals in spite of over 200,000 academics who are looking for work. Recently a forum held in Jakarta was attended by a representative number of Australian vice-chancellors who discussed the future of higher education in Indonesia, which is the world's fourth largest country, and assistance from Australia. Indonesia has 47 universities and over 1,000 private colleges. It could benefit highly from the expertise in higher education available from Australia. We have reported previously on the exemplary efforts made by Australians to export their engineering education to Vietnam and Poland (see **Z. J. Pudlowski**, The International Technical University of Poland, in Vol. 9, no. 3, 202–208).

Malaysia

Malaysia goes private

Malaysia, with only eight public universities, is unable to cope with the demands for higher education. Many of the 70,000 Malaysians studying abroad go to Australia, which earns a hefty income from these students amounting to over A$1.2 bn. At present Australian universities have to collaborate with existing institutions in Malaysia in order to export education. The University of Sydney has invested $50 m. in a campus at Penang. Now Malaysia is planning to build three new public universities but is going to allow new private colleges as well, which will offer degrees in co-operation with existing institutions. This is well within the trend of recommendations of the World Bank report (see above).

Conferences

International Conference on Simulation in Engineering Education
15–18 January 1995
Las Vegas, NV, USA
Contact: Magdy F. Iskander
Electrical Engineering, University of Utah
Salt Lake city, UT 84112, USA
Tel: +1 801 581 6944 Fax: +1 801 581 5281
ex-mail: iskander@ee.utah.educ

ICTE Orlando: 12th International Conference on Technology and Education
28 February–3 March 1995
Orlando, FL, USA
Contact: Tom Sechrest
Continuing Education Program, University of Texas
Austin, TX 78712, USA
Tel: +1 512–471 4080 Fax: +1 512 471 8786
e-mail: sechrest@mail. utexas.educ

CAL 95: Computer Aided Learning in Education
10–13 April 1995
Queens' College, Cambridge, UK
Contact: CAL 95 Secretariat
University of Cambridge Computing Service
Pembroke Street, Cambridge CB2 3QG, UK
Tel: +44 223 334600 Fax: +44 223 334679
e-mail: CAL95@ucs.cam.ac.uk

Sixth World Conference on Continuing Engineering Education
8–12 May 1995
São Paulo/Rio de Janeiro, Brazil
Contact: Professor Edith Ranzini
Escola Politecnca-EPUSP
Caixa Postal 8174
01065–970 São Paulo-SP, Brazil
Fax: +55 118137415 e-mail: wcce95@lsd.usp.br

American Society for Engineering Education Annual Conference
25–28 June 1995
Anaheim, CA
Contact: ASEE
1818 N. St. NW, Washington DC 20036, USA
Tel: +1 202 331 3500 Fax: +1 202 265 8504

International Congress of Engineering Deans and Industry Leaders
3–6 July 1995
Monash University, Melbourne, Australia
Contact: Professor Z. J. Pudlowski
Faculty of Engineering, Monash University,
Caylton, Victoria 3168, Australia
Tel: +61 3 905 4977 Fax: +61 3 905 6069
e-mail: zjp@eng.monash.educ.au

AI-ED 95: 7th World Conference on Artificial Intelligence in Education
16–19 August 1995
Washington DC, USA
Contact: AI-ED/AACE
PO Box 2966, Charlottsville, VA 22902, USA
Tel: +1 804 973 3987 Fax: +1 804 978 7449
e-mail: aace@virginia.educ

International Conference on Engineering Design: ICED Praha 1995
22–24 August 1995
Prague, Czech Republic
Contact: ETH—Swiss Federal Institute of Technology
ICED-UNO, CH 8028 Zürich, Switzerland
Tel: +41 1 632 2431 Fax: +41 1 262 0211

CAEE 95: 3rd International Conference on Compute Aided Engineering Education
6–8 September 1995
Bratislava, Slovakia
Contact: Conference Secretariat
Slovak Technical University, Microelectronics Department
SK-81219 Bratislava, Slovakia
Tel: +42 7 723486 Fax: +42 7 723480
e-mail: caee95@elf.stuba.sk

Fourth World Conference on Engineering Education
15–20 October 1995
Minneapolis–Saint Paul, MN, USA
Contact: Dr E.R. Krueger
Wiliam C. Norris Institute, 245 East Sixth St.
St Paul, MN 55101, USA
Tel: +1 612–225 1433 Fax: +1 612 225 1241
e-mail: wcnrex@epx.cis.umn.edu

Active and Productive Learning in Higher Engineering Education
1–4 November 1995
University of Twente, The Netherlands
Contact: Huib J. van Oort
Department of Mechanical Engineering, University of Twente
7500 AE Enschede, The Netherlands
Tel: +31 53 892474 Fax: +31 53 356490