

# Is all science vocational?

**Richard Pearson\***

*Figures for the numbers of graduates finding employment suggest that it is often difficult to predict the usefulness of a so-called vocational course.*

THE pressure is on for a further, more decisive change in higher education policy in the United Kingdom — away from non-vocational towards more vocational courses. But what is vocational? To many, science and technology are vocational while arts and social science, with the notable exception of business-related studies, are not. Life is not, of course, that simple and a new report<sup>1</sup> from the Department of Employment and the Department of Education and Science shows some of the extreme variability between the employability of graduates from different but often seemingly related disciplines. The report is intended to "help intending students form a more realistic assessment of the likely consequences of particular courses of study". It shows subsequent employment patterns of graduates in 1982 and also looks at entry standards and competition for places on degree courses. The poor employment record of many biological science graduates is significant.

Of course, studying for a degree is not just about getting a job and short-term employment prospects. The social aspects of college life are important, while a degree allows the development of academic interests and further academic challenges. Indeed, few graduates cease learning on leaving higher education. Many follow employer-based training. Others stay on for postgraduate study, research or training, an important pre-condition for entry to many jobs such as teaching, which requires a postgraduate diploma, or research, where a PhD is often a precondition for entry, although it rarely guarantees employment in itself. More than a third of chemists from the universities have gone on to research after graduation, as have slightly smaller proportions of zoologists, physicists, biologists and geologists. These are far higher proportions than for most subjects and in the case of women graduating in these subjects, as many as ten per cent more have also gone into teacher training. The data for the polytechnics showed rather fewer staying on for further academic study but with broadly similar patterns.

Of those seeking jobs on graduation, it

has been those in medicine, engineering, education and law and business-related subjects that have found it easiest to get employment, and significant proportions of these have gone into work related to their degree subject. Perhaps the only surprising group here are the civil engineers, 87 per cent of whom found employment within six months of graduation despite the slump in the civil engineering industry in the United

the vocational areas, if need be at the expense of the non-vocational disciplines. To what extent has the recent reshaping of higher education moved in this direction? Information is now available about admissions to universities in 1983, two years after the first cuts. From these data, the numbers graduating, by discipline, can be estimated for the years to 1986. The total decline in university graduate numbers since 1983 is likely to be of the order of 6,000, if the special cases of medicine and education are excluded. This represents a fall of almost 10 per cent from the peak year for university graduations.

The "lost" graduates have come from across the subject range, particularly arts (33 per cent) and social sciences (34 per cent), but also engineering (14 per cent) and the sciences (16 per cent). On a proportionate basis, the sciences suffered least, a reduction of under 6 per cent, while engineering lost nearly as many graduates as did the arts and social sciences. Within subjects, the contrasts have been even greater, with graduate numbers in electrical engineering (the subject most in demand by employers) falling by 10 per cent, zoology by nearly 30 per cent, chemistry by 4 per cent, and both computer sciences and mathematics each falling slightly over this period. By contrast, biology and biochemistry graduates, both likely to have poor employment prospects, will continue to increase, as will geologists and physicists.

The University Grants Committee has commented that "the reduction in engineering, mathematics and computer science was not unexpected", although it had been hoped to engineer a more decisive switch towards these subjects. Similar data are not, unfortunately, available for the polytechnics, but a similar pattern may emerge. Remedial policies are now in hand to improve the throughput of graduates in information technology and plans may be afoot to shift the balance of higher education further towards the vocational areas. However, given the inertia of institutions and the lack of student interest, something more dramatic may be needed if real flexibility is to be introduced in matching subjects to employability. □

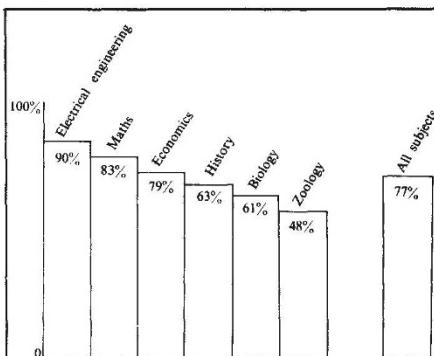


Fig.1 University graduates finding employment — selected subjects.

Kingdom. In part this is explained by significant numbers finding jobs overseas but probably also because they have strong mathematical skills, a major asset for any graduate job-seeker. By contrast, as might be expected. Those finding it hardest to gain jobs have arts backgrounds, where there are few subject-relevant jobs outside teaching; those in the biological sciences also suffer, however; zoologists fared worst in 1982, under half (48 per cent) of those entering the labour market finding permanent employment, a proportion only slightly exceeded by biologists (61 per cent), chemists (66 per cent) and biochemists (65 per cent). The average for all subjects was 77 per cent (Fig.1). Of those finding jobs, only a few scientists directly used their degree subjects. Employment patterns of polytechnic graduates in these subjects were broadly similar but with fewer going quickly into permanent employment. Within each subject, women had slightly better prospects of obtaining early employment than men. The report comments that this may be because a smaller proportion seek to enter the job market, or it may be that women are more flexible in the sort of job they are prepared to do.

For many years, there has been national pressure to increase the number of places in

1. *Graduates and Job* (HMSO, London, 1984).

\*Richard Pearson is at the Institute of Manpower Studies, Mantell Building, University of Sussex, Brighton BN1 9RF, UK.