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The Polytechnics

A Peculiarly British Phenomenon

The development of the British polytechnics is described in the context of the binary structure of higher education. They are seen as a peculiarly British phenomenon. The framework for their governance, resourcing, and maintenance of academic standards is contrasted with that for the universities in the United Kingdom. The polytechnics have become a very powerful force in British higher education and have been in the vanguard of innovation, expansion, and widening access. The article concludes with a section on what the proposed developments in the next few years might bring.

The Binary System of Higher Education in the United Kingdom

The United Kingdom has a binary system of higher education. Academic institutions are divided into two main categories. One consists of forty-five universities, which are empowered to award degrees in their own names, function with considerable autonomy, and are not subject to external quality control. The second part consists of thirty-three polytechnics and some fifty-three other colleges and institutes of higher education in England, plus a smaller number of similar institutions in Scotland and in Wales. To become a polytechnic, an institution must be formally designated by the secretary of state for England, Wales, or Scotland, respectively.

The polytechnics and colleges in the nonuniversity sector received institutional autonomy only three years ago. Their degrees are still awarded by the Council for National Academic Awards (CNAA) rather than by the institutions themselves. That is why in Great Britain one often refers to degree-granting and nondegree-granting institutions, a technical distinction which at times confuses American observers.

Until recently, the nonuniversity sector further differed by being maintained by local government. By contrast, the universities receive their operating funds through a central agency, for many years the University Grants Committee (UGC) and, more recently, the reconstituted University Funding Council (UFC). As further described below, a national Polytechnics and Colleges Funding Council (PCFC) was only established in 1989.

The polytechnics in the United Kingdom form a diverse group of institutions that have much in common with the universities. But the polytechnics have a distinctive ethos with rather differently focused aims, satisfying a broader range of students' needs, and having, in the main, a different historical context. In trying to define what makes a polytechnic different from a traditional university and the polytechnic mission distinctive, there is a danger of looking for differences that may be more imagined than real, and of falling back on generalizations to provide convenient pegs. Nevertheless, the following can be considered as the common features characterizing the mission of the polytechnics:

- Teaching rather than research is the main function.
- Access is a prime consideration.
- Aptitude for higher education is a more important criterion for admission than formal entry requirements.
- Underprivileged and underrepresented segments of society are encouraged to benefit from higher education through the polytechnics.
- Strong links are fostered with local and regional communities, with industry, commerce, the professions, and the public services.
- Subjects and programs are closely related to the world of work.
- Great importance is attached to the validation and monitoring of academic standards.
- Part-time students form a significant proportion of enrollments.
- A substantial proportion of enrollments are in programs leading to a diploma rather than to a full-fledged degree.

The polytechnics are justifiably proud of the particular contribution they are making, collectively and individually, to higher education in the UK.

The History of Polytechnics

Polytechnics, in their current form, are quite young institutions. The first polytechnics were designated at the end of 1969, the majority in 1970, and the last of the first thirty in 1973. But their origins go back to the first half of the last century, arising out of the movement to provide education for those who had missed the opportunity and for those who wanted to improve their situation by study, usually in their own time. For example, the Royal Polytechnical Institute founded last century was to become internationally renowned as the Regent Street Polytechnic. It is now the Polytechnic of Central London and plans to become the University of Westminster.

By the 1930s, a number of colleges throughout Great Britain were offering programs ranging from craft and technician preparation to postgraduate and doctoral levels. Study was often in a part-time mode, but by no means exclusively so. At first-degree level, i.e., what in the United States would be called a baccalaureate degree, the programs led to the award of external degrees usually granted by the University of London, and many of their staff became recognized faculty members of

that institution. Qualifications provided by these colleges were recognized by professional bodies in areas such as architecture, law, planning, all branches of engineering, navigation and maritime studies, and pharmacy, to cite but a few.

These various colleges constituted what was collectively referred to as the system of "technical education." After World War II, a Committee on Higher Education chaired by Lord Robbins recommended that part of this sector, the Colleges of Advanced Technology (CATs), be transferred to the university sector. In some cases it was a moot point as to which institution would become a CAT and then a university of technology, and which would not. The Robbins report established a number of basic principles that have governed access to higher education in the UK ever since. Chief among these is the statement that higher education would be available to all who were properly qualified to enter it and who wished to do so. That statement was later qualified by the rider "...and who will benefit therefrom."

In 1966 the government published a white paper entitled *A Plan for Polytechnics and Other Colleges*. The white paper endorsed the two-fold policy that local rather than national financing should support a major part of higher education, and that indeed the principal further growth of higher education should be through the development of the polytechnic sector. The report recommended the development of institutions that were to be:

- comprehensive academic communities catering to students at all levels of higher education;
- major centers of higher education, which, though carrying the generic term of polytechnics, would not be prevented from using their existing or other titles;
- institutions with long-range plans for growth to at least 2,000 full-time students plus part-time students from the areas they served; and
- institutions with close and direct links with industry, business, and the professions.

By the late 1970s, the polytechnics were becoming more and more aware of their achievements and strengths. They were beginning to take less kindly to some of the more irksome external controls with which they had to contend. They wanted to assume more responsibility for the management of their affairs—academic as well as administrative and financial. At that time, with the exception of those in inner London, polytechnics had no separate legal identity, did not employ their own staff, and, with few exceptions, did not even operate bank accounts.

A National Advisory Body (NAB) was set up in 1982 to advise the government on the allocation of resources to polytechnics and other non-university institutions in England. The NAB achieved a good deal toward the rationalization of the system and the creation of a more cohesive approach to planning and identifying clear collective targets for polytechnics and colleges. It also argued for additional resources for these institutions, and for greater efficiency and effectiveness in their operation.

The next milestone in the development of the polytechnics as a major force in British higher education was provided by a 1987 government white paper entitled *Higher Education: Meeting the Challenge*, which proposed radical changes in the arrangements for funding and administering higher education.

The 1987 white paper recommended the establishment of a new body to oversee the funding of polytechnics and other colleges: the Polytechnics and Colleges Funding Council (PCFC). At the same time, the polytechnics and other colleges and institutions of higher education in England were to be removed from the local authority sector and incorporated by statute, funded on comparable lines to the universities though not on a comparable unit level. They were to be freed to manage all but their academic affairs. These proposals were embodied in the Education Reform Act of 1988, and the new statutory corporations took over the assets and liabilities of the English polytechnics and colleges in April 1989.

The Current Funding Method of Higher Education

Institutions of higher education receive public monies from three main sources: the appropriate funding council, tuition fees, and the five research councils. Table 1 compares the respective allocations from the first two of these sources for the university and the polytechnic sector, respectively. The block grant allocations from the respective funding councils are based on a kind of bidding system. The intention was that institutions of higher education should, in effect, enter into contracts for

Table 1: Public Funding of Higher Education 1990–91

	UFC-funded Institutions*	PCFC-funded Institutions†
Recurrent Grant (£ millions)	1642	1002
Tuition Fees (£ millions)	326	279
Totals (£ millions)	1968	1281
Projected Student Numbers (000)	289	264
Public Funding per Student (£)	6810	4852

Note: *Universities throughout Great Britain
†Polytechnics and Colleges in England only

the public monies they receive. The implementation of that objective has not been a simple matter, not least because of the need to avoid introducing instabilities into the system. Nevertheless, from the outset, both funding councils have sought to introduce mechanisms whereby institutions submitted competitive bids for part of their annual block grants for recurrent expenditure. The PCFC set aside 5 percent of its allocations in the first year, and 10 percent in the next (1991–92) for this purpose. Although the institutions affected were much disturbed by the fear of a further depression of unit costs as well as an inherent instability, the PCFC was successful in realizing its objective of encouraging polytechnics and colleges to admit more students at a reduced cost per student. The universities, on the other hand, closed ranks and the UFC largely failed in its attempt to impose a similar bidding system.

Academic Programs and Enrollment at Polytechnics

There are currently thirty-three polytechnics in England, two in Scotland, and one in Wales. The largest has a student population of about 17,000 (13,500 full-time equivalents) and the smallest one has more than 5,000 students. Most polytechnics are larger than the average-sized British university, and more students follow courses in polytechnics and colleges than at the universities. The growth of the student population in the polytechnics since 1980–81 has been a staggering 65 percent, with almost 278,000 enrolled, and there is every indication that the growth is continuing.

Students at polytechnics enroll both full time and part time, and many are in "sandwich courses," the label used in Great Britain for cooperative education. The normal pattern in British sandwich courses is for students to spend their first two years full time at the polytechnics, the third year in placement in industry, commerce, the public services, or abroad, and the last year back as full-time students. The year spent on placement is supervised and integrated into the courses. Most sandwich courses are in engineering, business studies, and other professional subjects. Sandwich courses also exist at universities, but on a much smaller scale.

Entry Qualifications and Application Procedures

The formal entry requirements for first-degree programs in polytechnics are the same as those required for entry into universities insofar as they relate to passes obtained in the school leaving examinations at the advanced or "A" level, normally taken at age eighteen plus, and the earlier examinations for the General Certificate of School Education (GCSE), normally taken at sixteen plus. In practice, however, the grades obtained at "A" level by polytechnic students tend often, but by no means always, to be significantly lower than those obtained by their university peers. The polytechnics also differ from the universities in their admissions policies. They welcome students with other entry qualifications, such as those of the Business and Technicians Education Council, which validates academic standards for sub-degree programs, or those acquired by

considerable work experience without formal qualifications. The latest available figures show that 30 percent of students admitted to polytechnics to full-time and sandwich courses did not have "A" levels. Many of these were mature students, defined as being over twenty-one years old on entry. In 1989–90 almost a quarter of those admitted to polytechnics fell into this category.

The polytechnics take pride in the value added to initial qualifications, and their results compare well with those of university graduates. The universities are now also increasingly adopting a more flexible approach to entry qualifications.

For the first fifteen years following the designation of polytechnics, students applied for admission to individual institutions. In theory, at least, it was possible for someone to apply to all thirty polytechnics, without anyone being the wiser. By contrast, the universities had long operated a centralized admissions system, the Universities Central Council on Admissions (UCCA).

By the early 1980s, the need to rationalize the admissions procedures for polytechnics and follow the universities' example became clear. The Committee of Directors of Polytechnics (CDP) established the Polytechnics Central Admissions System (PCAS) in 1984. From the outset, PCAS was determined to be user friendly for applicants and admissions staff alike in the polytechnics. Although centralizing the handling of applications, the system is neutral with regard to the admissions policy of each polytechnic.

Establishing PCAS has turned out to be an inspired decision. It became a superb public relations coup which almost overnight transformed the image of the polytechnics into that of a group of dynamic institutions able to work together. PCAS greatly facilitates the work of career advisors, and has become a powerful promotional tool for the polytechnics collectively. Since its creation, the number of applications and admissions to polytechnics has risen dramatically. Many colleges are now also joining PCAS. In addition, UCCA and PCAS are introducing a common application form so that admissions staff in all higher education institutions will know exactly who has applied for what. It is now only a matter of time before the two systems become one.

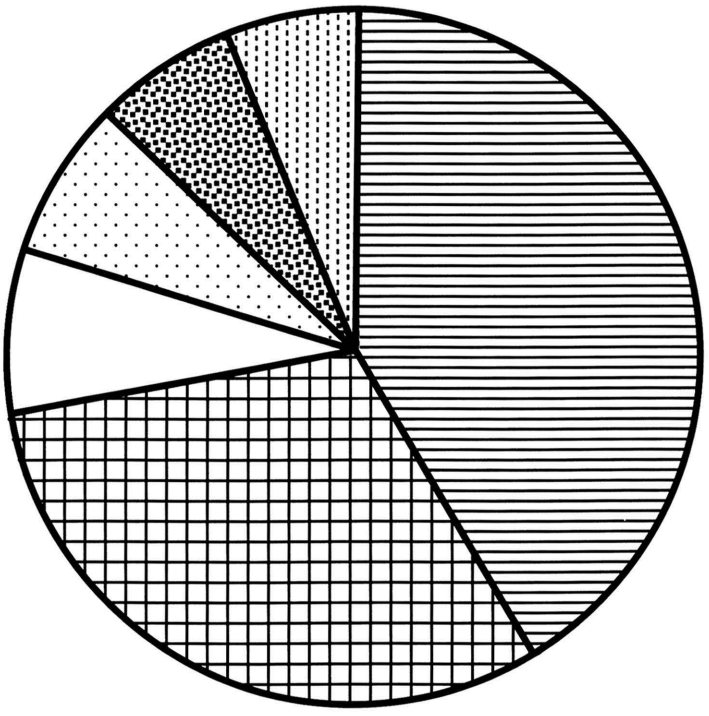
Distribution and Level of Degree Programs

British higher education is characterized by a very structured approach to the curriculum and to teaching, whether in the universities, the colleges, or the polytechnics. It is a very intensive experience. Students are normally expected to complete their studies in three or four years of full-time or sandwich study at degree level, depending on the program and discipline. Certain professional programs, such as architecture, are longer. A system of modular course units that build up credit toward a degree is being introduced in many polytechnics after being pioneered in a few institutions during the 1970s.

Polytechnics offer programs in almost every academic discipline covered by universities, with the exception of medicine and veterinary science. However, while the program subjects may be the same in universities and polytechnics, there are significant differences. First, the

balance of fields in the polytechnics places much greater emphasis on subjects related to the world of employment and the professions than is the case in the universities collectively. Second, the programs themselves are oriented toward application, although they do not neglect theoretical content. Third, the polytechnics have been very innovative in developing new and different subject areas. For example, they have led in the expansion of business and management studies, as well as computer studies, including the improvement of computer literacy in the majority of students in most disciplines. They have also placed much emphasis on the rightful place of art and design programs. Figure 1 shows the general distribution of broad subject areas in the polytechnics.

Figure 1: Main Subject Areas of Polytechnic Full-Time and Sandwich Course Enrollments 1989–90



Over three-quarters of the full-time students in polytechnics are enrolled in first-degree programs, the other quarter pursuing a wide range of advanced diplomas. Among part-time students, the proportion is reversed, with only one quarter matriculating for a first degree.

Academic Validation and Quality Assurance

As mentioned earlier, polytechnics do not award degrees in their own name. Their awards are those of the Council for National Academic Awards (CNAA) established in 1964. The CNAA degrees are required to be comparable in standard to those of a British university. From its creation until 1979, the CNAA operated a rigorous system of program validation and institutional recognition. Programs were approved for an initial five years, after which they were scrutinized before they were reapproved. The CNAA combined rigor with the encouragement of innovation. It established a system of peer-group evaluation, drawing participants from industry and the professions as well as from universities and polytechnics. In 1979, the CNAA issued a document called *Partnership in Validation* which began the move toward greater institutional autonomy in academic matters. Increasingly, polytechnics wanted the power to award their own degrees and diplomas, while acknowledging the importance of retaining a system of external peer-group evaluation. By the late 1980s, the CNAA was largely reviewing rather than revalidating programs, and delegating greater authority to selected institutions under a system of licensing. But it was a slow process.

Polytechnics and colleges are also subject to review by a central body called Her Majesty's Inspectorate (HMI), which is primarily concerned with the standards of learning and teaching, i.e., the knowledge and skills acquired by students. In addition, they share with universities one particular feature of British higher education: the use of external examiners of individual graduates. These examiners play a key role in safeguarding standards. Last but not least, all polytechnics have established rigorous internal procedures to ensure that high academic standards are set and maintained.

The Place of Research

From the beginning, the polytechnics were regarded by the government as primarily teaching institutions, but it was never intended that there should be no place for research. Indeed, many of the institutions that were merged to form the polytechnics after 1966 had established national and international reputations for the quality of their research, and were offering doctoral studies leading to a Ph.D. awarded by the University of London. The CNAA has been a prime advocate of research at the polytechnics, although the council has been careful to define research very broadly. Without research, polytechnics would find it difficult to meet the government's expectations that they should, as stated in the 1966 white paper, "form a strong and distinctive sector of higher education which is complementary to the universities," with which they

are to enjoy parity of esteem. Without research activity their credibility with industry and the professions would be weakened, and it would be very difficult to attract and retain academic staff of appropriate caliber and experience. Moreover, research plays a crucial role in maintaining the vitality of academic departments and faculties.

In the UK, funding for research in academic institutions is channeled in two ways: as part of their recurrent general operating funds from the government, and from grants for particular projects from the five research councils or other external sources. For polytechnics, the first of these did not exist at all for many years, and has only recently begun to provide a very modest allocation for research. Yet, as indicated in a recent report of a committee of inquiry on research at the polytechnics, polytechnics have "vigorous, distinctive, varied and growing research activities." The total expenditure in 1988–89 was around £80 million (about $130 million), of which about 63 percent came from the research councils and other external sources. Polytechnics have been successful in obtaining funding from industry and commerce for applied research, and in participating in programs that bring together companies and academic institutions in collaborative, problem-solving research. It is, however, important to keep in perspective the level of research activity at the polytechnics as compared to that of the universities. Polytechnics account for less than 8 percent of the funds allocated by the research councils, they attract much less than universities from other external sources, and the approximately £30 million polytechnics receive in their basic appropriation for research must be compared with the approximate figure of £780 million allocated for these purposes to the universities.

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Governance and Administrative Structures

Each polytechnic has a board of governors with members determined by the board itself after the initial members were appointed by the secretary of state from names supplied by the institution. Board sizes vary from thirteen to twenty-five. By law, more than half of the membership must be external to the institution, from industry, commerce, the professions, and the public sector. The board of governors is responsible for the overall conduct and management of the institution.

The highest academic body in a polytechnic is the academic board, which is responsible for the academic standards and profile, including graduation requirements. This board is almost always chaired by the head of the institution. The most commonly used title for the latter is that of director, but principal, provost, rector, and president are also used in some polytechnics. The chief executive is appointed by the board of governors on a permanent and full-time basis.

The constitutional relationship between the funding councils (PCFC and UFC) and the individual institutions is interesting. Although the councils are responsible for the allocation of government appropriations

and are accountable to Parliament for the proper use of these funds by the institutions, they have no constitutional say in the arrangements for their governance and administration. However, they do have powers to approve the institutional procedures for financial management and to ensure standards for public accountability.

The Next Few Years

In May of 1991, the government issued yet another white paper entitled *Higher Education: A New Framework.* The key proposals in this document are:

- dismantling the binary system with universities, polytechnics, and colleges being funded through three new councils—one for England, one for Scotland, and one for Wales;
- expanding higher education so that "nearly one in three of all young people will enter higher education by the year 2000";
- abolishing the CNAA and granting degree-awarding powers to polytechnics and colleges;
- permitting polytechnics to use the term "university" in their titles if they so wish.

The Further and Higher Education Bill giving effect to the white paper began its passage through Parliament in November 1991. If passed, the new framework for higher education will be fully operational by April 1993.

However, a general election in Great Britain will be held before July 1992, and although all three major political parties have declared their intention to do away with the binary system, there must be some uncertainty about the implementation of all the proposals in this bill. If an observer had predicted as recently as 1985 that within four years the polytechnics would no longer be funded locally, or that it would become government policy that polytechnics were to be given the power to award their own degrees and use the title "university," few would have taken such statements seriously. Yet the first has been realized and the second is already in the government's legislative program.

Even though, as yet, the binary system still exists, there has been a substantial drawing together of the two sectors. Already the two principal collective organizations—the Committee of Vice Chancellors and Principals (CVCP) and the Committee of Directors of Polytechnics (CDP)—are increasingly working together on behalf of higher education as a whole. Furthermore, some universities are becoming more teaching oriented, and the overlap between universities and polytechnics is increasing. As, in theory at least, the polytechnics become eligible for direct research support through the new funding councils, they may be unable or unwilling to retain their distinctive missions and ethos. There is the question as well of institutional title. Within the CDP, opinions were very divided about the use of the term "university." But there exists a safeguard against academic drift: the marketplace. Not all students want a wholly academic experience in higher education. If the government is to realize

its ambition of expanding participation, there will be a growing demand for the kind of opportunities provided currently by the polytechnics, and survival will require exploitation of that demand. It is to be hoped that most polytechnics will cherish their distinctive mission for altruistic reasons as well as on the basis of self-interest, whatever titles they may wish to use and whatever funding mechanism obtains.

The abolition of the CNAA is at one level clean and tidy, because in a postbinary era, it would be insupportable to retain a separate validation and quality assurance system for the former polytechnics and colleges. However, as resource constraints become more severe, only an independent body can give real confidence that standards are not being allowed to slip. It may, therefore, be shortsighted to dissolve the CNAA rather than to adapt it to meet the new situation so as to use its accumulated experience for the benefit of the universities as well as the polytechnics and colleges.

One other basic change may occur in the years to come. The traditional, highly structured, three-year degree programs as the normal mode of study is under attack, partly for educational reasons and partly for financial and political ones. One way the government expects to achieve its 30 percent participation rate in higher education will be to encourage institutions to offer two-year degree programs for those who do not want to complete a three-year curriculum. In the European context, three-year programs are barely acceptable as equivalent to the first degrees elsewhere, which usually take a minimum of four to five years to complete. Two-year programs will not be accepted as equivalent. But these are radical times, and there is no doubt that a new approach to higher education is long overdue.

As the government's proposals become a reality, Australia will no longer be alone in having created a Unified National System (UNS) of higher education from a binary one, albeit for rather different reasons and with rather different results. As this occurs, just possibly, for the first time, the present prime minister's declared wish to create a classless society may be realized in British higher education, without everyone using the Oxbridge model as the ultimate yardstick.