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THEMATIC REVIEW OF THE FIRST YEARS OF TERTIARY EDUCATION

COUNTRY NOTE: DENMARK

This Country Note was prepared by a Secretariat-led review team as input to the first stage of the OECD Education Committee's Thematic Review of the First Years of Tertiary Education. The views expressed are those of the review team. They do not commit the OECD or the countries concerned.

A comparative report for the first stage of the thematic review will be published by the OECD in the last quarter of 1997. Inquiries may be directed to OECD Publications.

Introduction

As part of the OECD Education Committee's thematic review of first years of tertiary education, a review team has in 1996 undertaken an examination of developments in and experience with new policy approaches in this field in Denmark.

The participation of the Ministry of Education in this thematic review continues what has been a substantial effort on its part to undertake, co-operatively and comparatively, analyses of reforms at key stages in education. The Review of National Policies for Education: Denmark (OECD, 1995) had as its main focus 'youth education' and, particularly, the Education and Training for All reform initiative (the so-called UTA-programme). The Ministry reported back to the Education Committee at its spring 1996 meeting on developments and experience since 1993-94, the time of that review. The Danish authorities also participated in the Education Committee activity on 'The Changing Role for Vocational and Technical Education and Training (VOTEC)', in which VOTEC linkages, pathways and progression within secondary and into tertiary education were examined.

It will be helpful to set out here the terms of reference for the reviewers' work, in part to situate the commentary which follows. For the purposes of the thematic review, 'tertiary' is intended to indicate a level of study, beyond secondary, rather than the specific institutions, sectors or other settings in which that study takes place. 'First years' refer to the three, four, five (or more) years of study necessary to acquire the initial qualification recognised on the labour market. In Denmark, there are several such initial qualifications (depending on the field): diplomas obtained on the completion of short- and medium-cycle non-university higher education, bachelor's degrees or master's (kandidatus) degrees would meet the criterion of 'first years of tertiary education'. Tertiary-level studies may be undertaken outside of 'regular' degree or diploma courses (especially provision through the Open Education Act and extensive training provided through active labour market policies -- both elements of Danish education and training which are unique in form and extent). Although we draw attention to other forms of tertiary-level study, the focus in this thematic review is on study in first-years 'regular' degree or diploma programmes.

The principal questions and issues under review were identified and developed co-operatively with authorities during 1994-95 for Denmark as for all the other ten countries participating in this stage of the thematic review. In working with the Secretariat to examine its experiences with developments and policies in the first years of tertiary education, each participating country has followed the same broad framework and set of procedures. In Denmark, the Ministry provided responses to a common list of questions and organised in April 1996 a study visit for a four-person review team, which included scheduled meetings with government agencies, councils, employer groups, associations of workers, students and various groups within individual tertiary education institutions.

During the course of the work of the review team, the Ministry as well as those representing tertiary education institutions, its teachers and its 'clients' and 'stakeholders' -- students, employers and the professions among them -- provided considerable additional descriptive information and background materials and were most helpful in responding to questions about the first years of tertiary education in Denmark. We were impressed by the evident commitment, knowledge and professionalism of those with whom we met; such levels of engagement and understanding surely help to explain in large measure the many positive features and outcomes of Danish tertiary education. We express our thanks to all those with whom we met and, in particular, the Ministry for its involvement in and support for this effort. Messrs. Torben Kornbech Rasmussen and Erik Nexelman, respectively of the Departments of Higher Education and of Vocational Education and Training, led the Ministry's participation in this thematic review; Ms

Ella Højbjerg Madsen provided support and information throughout the visit, in which we were also ably assisted by Ms Christine Høstbo.

This 'country note' on First Years of Tertiary Education in Denmark has been prepared by the Secretariat as part of its work for the larger multi-country thematic review. The note draws on materials supplied to the Secretariat prior to, during and after an intensive study visit, comments to and observations by the review team during the visit itself, and the assessments and judgements of each member of that team.

Context

Denmark is an enterprising and highly literate country, increasingly international in perspective and links and relatively well off. Its history, its position in Europe, its Scandinavian language and culture and its geography have shaped the evolution of the society and economy. As characterised by OECD Examiners in the recent review of youth education, Denmark is:

"... a country of individualistic, non-conformists who are proud to be Danes, but are ambiguous about their relationships with the State, or with other large systems of government and administration ... long tradition of seeking consensus and conciliation in tackling issues in politics, industrial relations, and in communal and personal situations. In part, at least, that mix of individual freedom and consensual politics has contributed to the general liberality and openness of Danish society and the wide acceptance of welfare State politics."

There are some new challenges, not least those arising from developments in the economy. A 1996 OECD report on Denmark, prepared with the recommendations of the OECD Jobs Study in view, drew attention to a secular rise in the rate of unemployment which, even with improvement in the economy following the recession of the early 1990s, appears unlikely to fall much below the present range of 8-9 per cent. The structural impediments to further improvement are believed to include, among others, relatively limited wage flexibility, relatively high tax rates, very generous social welfare benefits, limited competition in product markets and relatively low participation of the private enterprise sector in education, training and upgrading skill levels in the labour force (particularly for those who have not acquired a vocationally-qualifying education). The government has itself identified these areas as targets for reform, all seen as directly or indirectly linked to an ambitious effort to reduce the level of unemployment to 5 per cent by the end of the 1990s.

There is widespread recognition of the importance of education and training. The OECD Examiners of youth education in Denmark observed: "Given the economic realities, and its lack of natural resources, Denmark is highly dependent on the skills, qualifications, inventiveness and entrepreneurship of its people." The commitment to education that these realities entail is evident in the recent vigorous developments of policy. One of the purposes of the present thematic review is to indicate where, from the reviewers' perspective, effort in the first years of tertiary education might be further concentrated.

We have already referred to the UTA-programme and related reforms, which have had as an overarching objective to reduce substantially the numbers of young people who do not complete a 'vocationally-qualifying education'. There has been a significant improvement in this regard -- 86 per cent of the relevant age cohort is now acquiring some type of 'vocationally-qualifying' education (up from 70 per cent in the early 1990s) -- due partly to the educational reforms implemented in the heart of the recent recession and expected to be sustained through further changes in the social insurance system which greatly limit benefits to those neither in school nor in training. Thus, reforms and developments have

combined to influence the choices of young people, so that an increased proportion now follow courses of study through upper secondary education ('youth education') which provide access to tertiary education. A key implication for the tertiary education sector is that reforms undertaken to improve success rates in the transition from basic to youth education and in youth education increase the demand for tertiary education, quite apart from policies and reforms put in place for the tertiary education sector alone.

Tertiary education has undergone its own development, in response to dynamics both internal to Denmark and shared with most of the other countries participating in this thematic review. A useful shorthand for describing the tumultuous changes occurring in tertiary education throughout the OECD area is to speak of the transition from elite to mass participation at this level. In the elite era perhaps ten to fifteen percent of an age cohort entered tertiary (mostly university) education; today, the proportion of a cohort in a diverse range of tertiary education settings approaches 50 per cent in many countries and exceeds it in some. In Finland, for example, the goal is to provide tertiary education for 60-65 per cent of the age cohort by the early 2000s. In Virginia, the U.S. state examined in this thematic review, the participation rate is an estimated 70 per cent.

In Denmark, the proportion of a cohort who enrol in some form of tertiary education is about 45 per cent, while about one-third of a cohort eventually will complete studies in tertiary education (lifetime profile). The latter proportion, significantly increased from the present one-fifth share of adults (age 25-64) with tertiary education qualifications, reflects the eventual effects of the recent expansion of demand and provision.

Another third of the age cohort eventually complete vocational education and training. The remaining third are divided evenly between completers of non-vocationally qualifying education (general, academic studies) and drop-outs from upper secondary or tertiary studies. We do not have a clear picture of the engagements of drop-outs; presumably they are employed, unemployed or not in the labour market. Moreover, at the tertiary level, some may be 'stopouts', some may wish to undertake only part of a programme ('Youth Profile', Thematic Review of First Years of Tertiary Education: The Danish Report; see also our discussion below under 'Students: Demand, Access, Equity and Academic Progress').

The government is committed to supporting growth. In principle, each qualified student should be able to follow precisely the programme of study which suits his or her interests. At the same time, while all interested parties seem to agree that tertiary education has served individual students and the country well, concerns are expressed about its relevance, quality, efficiency and sustainability. The concerns have arisen from some fundamental characteristics of education in Denmark, which in the words of the OECD Examiners for youth education, "is generous, inclusive, complex, expensive and relatively leisure in pace."

There is, thus, wide political interest and support for government policies to both expand participation in tertiary education and to reform it.

In a series of reforms given force in the early 1990s, the government has sought to develop means to ensure that tertiary-level programmes and qualifications are relevant, of high quality and delivered efficiently and effectively. The main elements in the policy framework introduced for these purposes reflect a Danish approach which balances state controls with choice and autonomy for students and for the institutions which enrol them. Specifically:

1. The University Act which came into force on 1 January 1993 introduced stronger and more clearly defined powers and responsibilities for university administrators and governing and collegiate

bodies. This Act applies to universities, but similar terms for other tertiary self-governing institutions have now been adopted by the Danish Parliament.

2. Largely through the 1992 Pluriannual agreement, a reform of the financial management of medium-cycle and long-cycle tertiary education courses was implemented from 1994. This reform extended features that were introduced in Technical and Commercial schools in 1989, via the Act on Vocational Colleges. The new system of financial management means that:

- the funds are allocated in block grant, leaving to each institution the scope to decide how to allocate the funds received from government and any other income in order to meet its objectives;
- funding for teaching for all long- and medium-cycle programmes (in universities and colleges) is provided according to the success of students on year examinations; funding for short-cycle programmes in Commercial and Technical schools is provided according to full-time enrolment, but not for students repeating a year. This funding approach, called the 'taximeter' system, is described in greater detail under 'Costs and Financing';

3. Changes in the structure of first-years programmes, principally the bachelor's degree in universities and the diploma from short-cycle courses, were reinforced (see 'The System of Tertiary Education', below);

4. Oversight and monitoring of programme offerings were strengthened through:

- the operation of the five national advisory boards for higher education, with responsibility, individually, to advise the Ministry on developments relevant to tertiary education provision within their respective fields (technology, social sciences, natural sciences, humanities and health education) and, collectively through a chairman's conference, to provide advice applying to all tertiary education (discussed at greater length under 'Governance, Planning and Co-ordination');
- the establishment of a separate Council for Further Technical Education, to review the experience with the full range of short-cycle technical programmes (also examined under 'Governance, Planning and Co-ordination');
- the establishment of the Centre for Quality Assurance and Evaluation of Higher Education, to undertake independent evaluations of the quality of overall provision in particular fields (examined at greater length under 'Quality Measures', below)
- the proposed information system for vocational schools which offer short-cycle tertiary-level courses and for colleges and universities, to provide all interested parties with the opportunity to follow how teaching is organised and resources are used.

We shall discuss many of these initiatives in our commentary. Two general observations can be made here. First, the individual reforms undertaken or reinforced in first half of the 1990s reflect a substantial and deep change, both in policy direction and in the responses expected by tertiary education. Taken together, the reforms are comprehensive; they cover content, structure, administration, organisation and finance and apply to education extending from secondary through tertiary levels and to programmes for adults. Second, the new policy environment is intended to be characterised less by dictate; more by broad framework, information and incentive. But, if there is to be change to traditional structures, there

will need to be strong leadership and positive incentives from the centre. Danish respect for liberty permeates public policy administration; in tertiary education, this may have to be complemented with a balanced strategy of carrots and sticks if the new policies are to be advanced in reasonable time. One theme running through our comments is the advantage of a strengthened strategic role for the Ministry and government in promoting responsiveness and further improvement on the many favourable features and strengths of tertiary education in Denmark.

The System of Tertiary Education: Institutions, Course Structures and Curriculum

In Denmark, tertiary education is offered in a range of institutions. The programmes offered differ by content, level and length, as broadly reflected in the terms 'long-cycle', 'medium-cycle' and 'short-cycle'. The university sector is comprised of five universities, having the full range of academic disciplines, and seven more specialised institutions with programmes focused on specific professional fields (technical university, business, veterinary and agricultural university, etc.). Under what is referred to as the '3-2-3' structure of studies, the universities offer both long-cycle and medium-cycle programmes. The bachelor's degree course, of three-years duration, is a medium-cycle programme. The master's course is a long-cycle programme, mostly of five-years duration or two years beyond the bachelor's degree. Students completing the master's degree may continue on in doctoral studies, for a period of usually 3 years. While the bachelor's course is a complete study programme, nearly all students acquiring bachelor's degrees are presently continuing on to undertake the additional two years of study needed to obtain a master's degree. A second group of institutions, comprised of about 90 relatively small colleges, offer programmes which focus on specialised fields, most prominently teacher training and health and social services. These institutions offer medium-cycle programmes of 3-4 years. A third group of institutions, vocational schools, provide advanced courses in commercial and technical fields. These courses, aimed at specific areas of employment (construction, marketing), comprise short-cycle education of 1-3 years duration.

In 1996, budget figures for admission to tertiary education under the Ministry of Education (covering virtually all of formal tertiary level provision) indicate the following entry patterns: 43 per cent to long-cycle courses at universities (including bachelor's programmes, as virtually all students continue on for the master's degree); 31 per cent to medium-cycle courses in the colleges; and 26 per cent to short-cycle courses in Commercial or Technical Schools. Graduates, in 1993, were divided as follows: 22 per cent from long-cycle courses provided by universities; 56 per cent from medium-cycle courses provided by colleges; and 22 per cent from short-cycle tertiary-level courses offered at vocational schools. Over the ten-year period to 1993, the number of graduates of medium-cycle programmes (the colleges) has grown relative to the number of graduates of both long-cycle and short-cycle programmes. The percentage increases in graduates over this period are 36 per cent for medium-cycle, compared to 35 per cent for long-cycle and 12 per cent for short-cycle tertiary education programmes.

These are annual 'snapshot' figures, behind which more complex patterns can be seen. From the perspective of an age cohort (lifetime profile), the distribution of those who eventually acquire tertiary qualifications some time in their lives is now 29 per cent from long-cycle programmes; 54 per cent from medium-cycle programmes; and 17 per cent from short-cycle programmes (sum to 100 per cent of those with tertiary qualifications). Further, of those entering short-cycle programmes, about half come through secondary vocational education and half come through tertiary education. These data suggest some diversity in the timing and routes of entry and exit in tertiary education.

Bachelor's Degree

The reforms to Denmark's tertiary education were described to us, in the Ministry and in some institutions that we visited, as a move from the Germanic system towards the Anglo-Saxon approach. The clearest manifestation of this is the Government's policy to strengthen the position of the three-year bachelor's degree as the first tertiary-level qualification rather than the most common five-year master's degree.

In view of the continuing increase in student numbers, the existing duration of studenthood and experience in other countries, we would encourage the Ministry to press ahead with the bachelor's degree innovation. Already there is support for it in parts of the university sector and successful experience in selected fields, e.g. engineering and business. There appears to be interest in some institutions which offer medium-cycle courses (about which, more below).

There is considerable resistance in universities and apparently labour market indifference to this development and the Ministry is aware that more time could have been devoted to preparing and introducing the idea. One response to the objection from universities, that three years is not long enough for the basic degree, is to accelerate the work rate of students. This, we realise, is liable to be a touchy subject, but we were told by students that survey evidence showed that contact hours plus individual study time amounted to about 750 hours per year. Even if this is a 25 per cent underestimate, there would seem to be room for additional study time within the three-year bachelor's degree programme.

However, our questions concerning the position of the bachelor's degree programme go beyond the appropriate length of studies needed for such a degree. It seems to us that, with some exceptions, too little effort has been given over to a re-conception of the bachelor's degree programme as a coherent set of studies leading to a qualification in its own right as opposed to a break point in the master's degree. In this respect, we ask whether it would be useful to support curriculum development within the three-year degree bachelor's programme as well as for the development (now supported by the government) of 'vocationally-oriented' six-month module to be attached to some programmes for those bachelor's degree holders wishing to enter the labour force. It should be useful to explore ways in which the contents, contexts and methods developed in an experimental way for the new modules could be integrated within the three-year bachelor's degree programme, by adapting existing curricula rather than adding to it.

A second issue concerns the acceptability of the bachelor's degree on the labour market. The main planks of a strategy to improve its acceptability already are in place and are being pursued. The first plank is to continue to build on successful experience. We were told that those completing some bachelor's degree programmes are being attracted into employment rather than choosing to remain in the university for a master's degree (e.g. languages, where specific competences and knowledge are in high demand in the Danish economy). The second plank, mentioned above, is to encourage a re-thinking of the bachelor's degree programme as a coherent set of studies leading to its own distinctive qualification. A third plank, related to this, is to foster greater involvement of the social partners in co-operative efforts to develop course contents, methods and contexts. We have in mind here more extensive co-operation in the form of periods of work-based learning as part of the degree programme, in addition to the advisory roles now assumed by the social partners.

The social partners also have a role in encouraging the development of an appropriate level of remuneration for bachelor's degree holders. At present, the salary differential appears to provide limited incentive for employers to hire bachelor's over master's degree graduates. Lacking job opportunities and given the broad base of student financial support available, it should not be surprising that students choose to continue on to complete master's degrees on completion of bachelor's degree programmes. The

experience of the government's experimental 'ice breaker' programme to offer an 'appetiser' of 11 000 crowns per month to employers for each new hire of a graduate of a three-year programme at university-level (including bachelor's degree holders) is instructive here: half of the 2 000 recruited under the programme remained with their firms after the government subsidy was withdrawn. This would appear to indicate that employers found graduates of three-year programmes productive, once on the job -- the initial barrier to recruitment being the salary level and differential.

Short-Cycle Programmes and Non-Traditional Forms of Participation

The development of short-cycle tertiary education and Open Education (through which most part-time study may be pursued, see below), along with the Bachelor's Degree, represent important responses to the growth and diversification of demand.

A target for policy has been the expansion of non-university programmes, particularly short-cycle tertiary education offered in Commercial and Technical schools. The stated purpose is to help accommodate the wider range in backgrounds and interests in the growing pool of those wishing to pursue tertiary education and to serve the varied skill and knowledge requirements of the Danish economy. Such an effort seems to find support through reference to the experience in other OECD countries: among those with identified non-university provision, Denmark has a relatively low proportion of its tertiary-level enrolment in this sector (Table 1).

Short-cycle programmes encompass a very wide range of advanced technical or commercial studies in vocational schools. While our schedule only permitted visits to three schools offering such programmes, we were impressed by the effort and thought put toward the development of short-cycle programmes in these schools as well as the commitment and engagement of the staff and students with whom we met.

The programmes offered by Commercial schools are of particular interest, both in terms of their structure and the types of students who choose them. The programmes are intended to be highly responsive to the needs of enterprises and less theoretical than medium-cycle programmes offered at business colleges or related courses at the university level. Through such arrangements as 'export academies' students alternate periods of study with periods of work. Such arrangements accommodate the particular needs of those already in employment, and also provide some entry into future employment for those not currently employed (and an opportunity for 'pre-recruitment' by firms). Employers and students who are otherwise employed contribute to the costs of the programme. The students with whom we met understood well the features of the various tertiary options in commercial and business fields; they indicated to us that they chose these programmes because they provided the best match with their own interests. We understand that programmes offered through the 'export academies' are also attracting those with other tertiary-level qualifications or experience, leading to a layering of qualifications (about which, more below). These short-cycle programmes, no less than medium-or long-cycle programmes, need to provide preparation for varied and variable career paths.

In short-cycle technical programmes, a current priority is the review and possible consolidation of the 23 or 24 fields which presently define tertiary education for professional technicians. There is some unease, not least in the Council for Further Technical Education (CFTE) where this is being debated, about the direction to be taken. As already described, the reforms in management and financing now permit individual Technical Schools to mount 'short-cycle' courses on their own initiative, and we were informed that the resulting enthusiasm from these schools has led the Council and the Ministry to consider the idea

of a check list for institutions to use in gauging the need for, and the prerequisites for offering, new 'short-cycle' technical courses.

Open Education, defined as vocationally-oriented adult education, has been identified by the Ministry as a target for expansion. The principal beneficiaries are intended to be adults and those otherwise wishing to following a particular course module (or set of modules) on a part-time basis. Study through Open Education can lead to a recognised tertiary qualification. All tertiary providers are invited to provide Open Education, drawing on or adapting course modules in regular study programmes. Participants in some courses can receive 'credit' for their own work experience, toward the practice component of a study programme. We were told that many participants in Open Education courses already have tertiary-level qualifications. Unlike full-time study toward degrees, participants in Open Education are expected to pay fees to cover part of the costs (on the order of 20-30 per cent), while the government provides partial support through its 'taximeter' funding system.

We could not explore in great depth the scale and nature of the Open Education effort. The policy thrust is, in any case, relatively new, having been advanced in its present form just from 1994. Currently, vocational schools and business schools account for almost three fourths of the enrolment in Open Education. At Copenhagen Business School, about 40 per cent of the overall headcount is recorded under Open University. The government has signalled its interest in generating a significant expansion in Open Education in universities, and we have the impression that there is further scope for development of, and useful synergy to be realised with Open Education, within and among programmes and institutions.

Institutional and Programme Linkages

Increased links between institutions would be in line with the aim of opening up and increasing flexibility in tertiary education. Our impression is that these links are, at present, relatively limited -- both among faculties in multi-faculty institutions and between related programmes offered by institutions in the different sectors. Links between short-cycle programmes and institutions and medium- or long-cycle programmes appear to derive mostly from informal contacts between staff, which are of course valuable. However, more substantive links could be considered, similar in spirit to the relationships established between universities and regional colleges in Sweden, to the benefit of programmes in each of the different institutional settings. Short- and medium-cycle programmes would benefit from increased exposure to the broader research underway at the universities, while universities could draw from the experience with a wider range of industry linkages found in short- and medium-cycle programmes. Such linkages could help to prepare students to pursue even more varied routes into and through tertiary education, to strengthen complementarities already under review in the National Advisory Boards, to widen the scope for participation in Open Education and to reduce the chances for inefficiencies arising from the still limited use of credit recognition and transfer.

In this connection, we noted with interest the new links between colleges and universities under consideration for several of the medium-cycle courses, particularly teacher education and occupational therapy and physiotherapy. With respect to the latter, we were made aware that planning is in hand for some graduates from occupational therapy and physiotherapy to continue with credit into university for bachelor's and master's degree courses.

Teacher education for basic school is presently conducted in eighteen single-purpose institutions. We were fortunate to visit one of these, and we were struck with the high sense of purpose and commitment of lecturers and students. At the same time, we could not help asking why preparation for a

human service profession as important as school teaching is not linked with the research domain of higher education whereas other human service professions, medicine for example, are.

An experimental linking of basic teacher education with the university is to be established in the domain of science. Although this originates with concerns about the drift of students away from science and technology programmes, we see no reason why similar arrangements should not be forged in other subject areas; or even why some entire courses of basic teacher education could not also be conducted in universities. The benefits could flow both ways -- on the one hand teacher education pedagogy would be enlivened through a more direct link with a research base, and, on the other, university pedagogy generally could benefit from the presence of education professionals and teacher education staff well-versed in the practice of teaching.

Length of Studies

The duration of studies in Denmark is among the longest in the OECD area. The average age of applicants to tertiary education is around 24 and, after undertaking a master's degree which is formally five (sometimes six) years but over which many may spend seven or eight, a large proportion of students are into their thirties before engaging in 'regular' work (see Table 2). Thus, we were told that 'adult' students -- those returning to tertiary education after having established themselves in more or less 'regular' employment -- could be defined as those at least thirty years old.

Such a pattern of learning, casual work and experience has its attractive features (not least for students); its benefits need to be weighed against obvious concerns about the human and financial costs involved, who pays those costs and the impact on overall efficiency in an economy continually seeking to improve its competitiveness in a global marketplace. Whatever the actual balance and incidence of benefits and costs of such an extended period of 'studenthood', the Ministry and sections in the tertiary education community believe there is room for improvement: students should complete their studies in reasonable time and enter the labour force sooner than is the present custom.

In this respect, the bachelor's degree not only provides yet another tertiary-level qualification to meet the wider range of needs from the economy and interests of a growing and more diverse student population but also offers the possibility to alter present patterns of study leading to delayed entry into the labour force.

More generally, we were struck that the uniform response to many challenges -- concerns about the 'poor preparation' of school leavers for tertiary-level study, the need for more science-literate teachers, development of adult education, recruitment of general education upper secondary students into vocational training or short-cycle courses -- was that "there will have to be an additional period of study" (six months, a year, a whole course) to deal with the matter at hand. The most widely-discussed proposal in this regard is to attach a six-month vocationally-oriented module to some of the three-year bachelor's degree programmes. Solutions in the form of lengthening study programmes came up in so many places that we began to refer to it as 'the add-on syndrome'.

There may well be a case for remedial, bridging or complementary courses in some instances. Nonetheless, in a context of increased participation, a policy orientation aimed at facilitating access and movement through education and concern about the duration of studies, 'add-on' solutions may be inappropriate responses -- particularly if part of the underlying problem is overly rigid and narrow study programmes. At least 'add-on' should not be a substitute for an overall appraisal of the programme of

study. Further careful analysis and research may reveal more effective educational solutions than simply lengthen programmes.

Students: Demand, Access, Equity and Academic Progress

Denmark is in the fortunate position of having wide political support for its plans to extend participation in education and training programs in upper secondary school, vocational education and training and tertiary education. We have already noted the scale: Of every 100 young people who completed basic school, an estimated 34 had subsequently graduated from vocational education, 34 from higher education and 31 either dropped out or were not qualified further after completing upper secondary school ('Youth Profile', Thematic Review of First Years of Tertiary Education: The Danish Report). Enrolments in tertiary education continue to grow (see Table 3) and seem likely to increase further, driven in part by the increase in the proportion staying on to complete upper secondary education.

The Government's policy for tertiary education is to respond to demand rather than attempt to predict the numbers needed in particular fields of employment. In the context of recent and continuing growth, there has been a pronounced unevenness with 'excess' demand for teaching, health studies, and some social science and humanities; but a decline in applications for commercial, engineering and other science and technical courses. The drift away from engineering and science was frequently mentioned to us as a matter for national concern, although this is an issue which requires careful research and further analysis, since the nature of the problem is not clear.

There is also considerable geographical unevenness in applications and preferences, as demand causes pressure on Copenhagen and one or two large cities, while places remain unfilled in other regions. So, although 'numerus clausus' is no longer operative, there is queuing in some places -- institutions in Copenhagen rather than the regions, and humanities and social sciences rather than science and technology -- because some faculties or institutions are unable or unwilling to enrol any more students. This problem derives from the relatively fixed capacity (number of staff, institutions and supporting facilities) presently available in particular fields, the broad base of financial support available for students and a general acceptance by young people of the 'student life'; the geographic imbalance is compounded by an apparent reluctance of young Danes to travel far (other than to Copenhagen) for their studies.

Equity

We were unable to obtain any up-to-date information regarding the operation of social mechanisms in determining who gets tertiary education. However, a longitudinal study is available of persons who reached the age of 38 in 1992 (Erik Jørgen Hansen, *The First Generation in the Welfare State*, 1996). Those in this age cohort who went on to tertiary education after school would have mainly done so in the late 1970s and early 1980s. The 1992 follow-up showed that about one quarter of those of professional class origin had completed long-cycle programmes compared with only about three percent of those of manual worker class origin. While there are sure to be differences of preference concerning tertiary education between social classes, a differential as large as 8 to 1 suggests that there are hidden selection mechanisms at work. The author of the study gave us his view that inequality has, if anything, become greater since the period covered by his study and that the increase in participation after the early 1980s has occurred in all social groups, but has been greatest in the higher social classes.

There are human capital as well as equity implications of this social bias. Denmark is set on building up a high performance, knowledge-based economy: this evidence shows that there are substantial

reservoirs of undeveloped intellectual potential which are not being developed in the tertiary education system. We cannot comment on the possible causes except to say that the early vocational decision forced on young people between basic and upper secondary, or even earlier, must contribute to the phenomenon. Changes to the objectives and structures of the school system are beyond our brief, but we took note of steps taken in the recent reforms to open pathways if not postpone decisions in or through youth education. For a variety of reasons, not least that the provisions are relatively new and require in some instances additional studies, the numbers of young people moving through 'non-traditional' pathways to different types of tertiary education remain small (OECD, *Reviews of National Policies for Education: Denmark, 1995*). Further on in the education process, there is room for both greater integration of Open Education and of credit transfer into the regular system (rather than as parallel 'add-ons'). This could assist in extending tertiary education opportunities to some who missed out early in the process.

We should add that social bias in tertiary education participation is noted in all countries taking part in this thematic review. Further, it appears that the greater opportunities provided by expansion tend to be taken up disproportionately by those already well-placed in the society and its education system. Whether the bias observed in Denmark is as great elsewhere is not known.

Women apparently take longer than men to fulfil their education ambitions but, compared with men, by age 38 a greater proportion of females who started on courses have achieved their ambitions. Nevertheless, female participation appears to have been substantially lower overall, with more than twice as many men as women completing 'longcycle' programmes (Hansen, 1996).

On our visits, we noted very uneven patterns of participation by gender in some courses. This is confirmed by Ministry statistics for 1993 which show that females comprise 46 per cent of enrolment in long-cycle programmes, 60 per cent in medium-cycle programmes and 42 per cent in short-cycle programmes. While the majority of applicants to tertiary education are females (a 60 per cent share), women are admitted into tertiary education courses at a rate below 60 per cent. Thus, women comprise the majority of applicants who are turned down for admission. The reasons for these patterns are several, among which the higher application rate of women to programmes which have lower admission rates (e.g. the medium-cycle teacher training and other education programmes, health programmes). Men, in contrast, are more likely to apply to programmes which have higher admission rates (e.g. technical programmes). No data are readily available concerning differences by gender in the rates of programme completion.

The patterns and trends are of broad interest, and there would be value to further analyses of the dynamics of female participation, choices and completion rates in tertiary education and of subsequent career experiences. It seems very likely that women constitute a potential source of recruitment for engineering and science, about which there is so much concern in Denmark. Experience elsewhere suggests that women may respond more positively to a curriculum which reflects female cognitive styles and values, a point which could be worth further consideration in the framework of various initiatives to boost interest and participation in science at school and tertiary levels and in engineering programmes at the post-compulsory stage.

We were not able to explore patterns of tertiary education participation for migrants or the children of migrants, a third group of interest. The scale and evolution of their numbers in the population, basic schooling, youth education and subsequent employment would merit closer attention; in several countries participating in the thematic review, policy has been targeted on improving access and retention into and through tertiary education of young people in these groups.

As mentioned above, there are issues of equality of opportunity as well as national economic significance involved in uneven access to tertiary education. The patterns of participation in tertiary

education at least raise the possibility that the better-off sections of society are, more than the poorer, benefiting in terms of participation in publicly-funded tertiary education and in terms of its outcomes. Although a reasonably clear and detailed picture is afforded by the available research, further analyses and policy development could be informed with the aid of more and more recent longitudinal and cross-section surveys.

Drop-Out

Our attention was drawn to the high level of student 'drop-outs' from tertiary education by the Ministry, by several universities and, with respect to engineering and technology, by the National Advisory Boards. On its face, a drop-out rate approaching 40 per cent seems to be a national indulgence. We were unable to reach any firm conclusions about the causes or significance of drop-out because there appear to have been few analyses or empirical studies of the problem. Applying cross-section data in an analysis of completion rates, the Ministry found an actual drop-out rate of about 20 per cent: that is, almost 80 per cent of those starting a tertiary education programme apparently eventually complete a programme -- although not necessarily in the same programme or field.

Behind these figures are many different stories, perhaps of students who were poorly taught and fail, or who were ill-prepared for the course and poorly advised about trying it, or who leave because an opening occurs in a preferred course, or who leave to take up employment, or whose motivation changes, or who were never very serious anyway.

Some universities and colleges have mechanisms for detecting and assisting students who are in difficulty, but in others there seemed to be limited awareness of drop-out problems, and this only after the event when records show that many have not re-enrolled. So, we were told, students 'get dropped out' rather than fail: few students actually exhaust the multiple opportunities to re-take examinations.

Our discussions with administrators and teaching staff at institutions provided some indications that the 'taximeter' mechanism is helping to direct interest to the teaching of students and to identifying those who may be in need of help. But we were also told in several meetings that tougher admissions policies would enable institutions to detect potential poor performers and admit only those students who are going to pass. It is not an uncommon delusion in some sections of the tertiary education community world-wide, that poor learning is seen as a problem of student ability (or of the basic and upper secondary schools which taught them) and that the solution is seen as better mechanisms for selection.

We were told that there are no recent educational or statistical studies of performance at school and tertiary education levels in Denmark. The recent Third International Mathematics and Science Study (TIMSS) is a notable exception, the results of which are mixed with regard to Denmark and, in the event, are the subject of wide debate. Evidence from studies carried out in a number of OECD countries shows that, while scholastic performance at school is the best single predictor of later performance at the post-compulsory and tertiary levels, the correlation is far from perfect and rarely accounts for more than one-third of the variation in outcomes. Rather than being a matter for concern, this result can be interpreted to mean that the tertiary education experience does make a difference. It suggests that attempting to detect and exclude applicants of modest school performance is not the course to follow: there are many who can be effective learners and benefit from well-designed, more student-centred tertiary education.

Relations with the Labour Market

In Denmark, the position of graduates on the labour market is relatively strong: in 1994, some 4-6 per cent of tertiary education graduates were recorded as unemployed, against an overall rate of unemployment of 12.4 per cent. Young graduates (as young people in general) are more likely to be unemployed, and this remains a matter of concern given the particular importance in Denmark of initial employment for subsequent employment experience and careers. There are differences in unemployment patterns among the various types of tertiary education. Graduates of medium-cycle programmes are relatively less likely to be unemployed, in part because access to these programmes is driven by the evolution of demand in specific occupations (e.g., teaching). Graduates of short-cycle commercial programmes are also highly likely to be found in employment, here it was said because of the extensive periods of work-based practical experience required during the study programmes. Students are encouraged, if not required, to find their own placements. As we have noted above, this feature would make such programmes attractive for young people and adults who are currently employed. At the same time, employers may well take on the work-based components of study programmes with the intent to employ the participating students full-time once they complete their studies.

The initial employment patterns of graduates of short-cycle technical courses have varied, in line with cyclical variation in economic activity in the associated sector. We have the impression, however, that the sometimes difficult employment experiences of graduates of these programmes also find their cause in the structure of the qualifications provided (e.g., the number of specialities, as already mentioned and under study by the CFTE). In this respect, we would pose two questions.

First, does the pattern of employment of graduates of these courses reflect, in part, study programmes which are weighted too heavily on the acquisition of specific skills? Without weakening the rigour and depth of the learning of such skills, it should be possible to build up the acquisition of more transferable skills and perhaps in so doing open up a wider range of employment opportunities for graduates, initially and over the course of their working lives.

Second, could present managerial and governance arrangements also play a role in generating imbalances between demand and supply on the labour market, by allowing expansion in such courses beyond the need? Given the free possibility for Technical Schools to mount such courses and notwithstanding the means for communication among schools on region-wide or national needs, there appears to be too little incentive given to the institutions to take decisions in ways which avoid the development of over-capacity as an immediate response to an identified or expressed need in the local economy. Partly, this may reflect a settling in of the reforms which have permitted Technical Schools to develop and offer courses, especially at the tertiary level. As individual schools gain experience (and perhaps reinforced with new capacities for management in these schools, the development of which could be an area of policy interest for the government), it is reasonable to expect that the aggregation of the decisions of each Technical School on the dimensioning and organisation of their individual short-cycle courses will better reflect overall needs. However, in the competitive environment introduced into Danish tertiary education, there may be a role for government in encouraging institutions to jointly examine needs and co-ordinate and co-operate in the development of appropriate responses. While emphasising the value of procedures which facilitate student choice, we would favour an approach which introduces incentives for this purpose (additional targeted funding in support of co-operative initiatives) over directives. Moreover, there is scope for closer co-operation and more exchange of information among institutions and between them and the employment sector.

There is some indication of a broadening of the initial employment destinations of tertiary education graduates, partly as a result of the economic restructuring currently underway in which established, traditional posts are being eliminated and new opportunities are emerging. We heard, for

example, of a wider range of job destinations and career paths for graduates of teacher training and the humanities and greater numbers of Ph.D.s entering non-academic and even non-research posts. It would be useful to know more about shifts in the patterns of employment, as such information would be helpful for young people and adults contemplating tertiary education, teachers and counsellors at schools and tertiary education institutions in their continuous efforts to update and improve study programmes and services, the Ministry and other interested parties.

One implication of changes in employment patterns, initially and through adult life, is the need to explore new directions for the timing as well as the content of tertiary-level studies. In Denmark, such a lifelong learning perspective provides a new angle for the rationale -- and content -- of the bachelor's degree. A lifelong approach to learning would stress the need to develop in students the capacity and motivation to learn at a high level and to equip them with the ability, as needed, to apply more broadly the methods and approaches from their own fields of study and specialities. It would also more explicitly recognise the option -- indeed, prepare students -- for a period of work or other activity before completion of a Master's or a higher degree. Such patterns already may be seen in such fields as engineering. Further adaptation in the organisation, methods and contexts of the last two years of the Master's degree, perhaps through approaches initially developed for provision through Open Education, might better accommodate the needs, acquired expertise and experience of bachelor's degree holders returning after some period in employment or other activities.

The lifelong learning perspective also could provide a basis for opening up the links between programmes offered in the different sectors, through the development of new approaches which allow young people and adults to build on tertiary-level coursework completed or qualifications already acquired. While such approaches could figure in full-time degree or diploma courses, Open Education offers a 'space' for experimentation.

We have already discussed the problematic position on the labour market of bachelor's degree graduates, and possible directions for policy to address the weakness. Here, we only stress that responses are needed from all parties -- government, tertiary education institutions and the social partners.

Quality Measures

New expectations for improved relevance and the costs of serving large numbers of students in tertiary education have caused many governments to initiate measures to assure that high standards are maintained and to enhance the quality of educational programs. Denmark is no exception. In this section, we report our observations on the Centre for Assurance and Evaluation in Higher Education and Denmark's system of external examiners, and discuss some issues relating to quality enhancement.

Quality Assurance

Denmark has chosen to establish a model of quality assurance where the focus is subjects and programs across the country with particular attention being given to teaching and learning.

So far, there have been no institutional audits. Quality assurance, where the focus is on processes within programmes rather than entire institutions, has considerable validity, especially in the case of universities, which are comprised of faculties and departments each with a distinctive culture and

each possessing considerable autonomy in the conduct of teaching and research. Nevertheless, there is a case for auditing entire universities (about which, more below).

We regard the particular concept which has been developed in Denmark for quality assurance as appropriate for the present conditions and the stage of decentralisation in administrative and academic decision-making that has been reached. It appears to be working well in practice.

The Centre for Quality Assurance and Evaluation of Higher Education (CQAEHE) was established 1992 as an independent agency. Its initial five-year mandate has now been extended by the Minister to 1999. CQAEHE has a brief to initiate evaluations, develop appropriate methodologies, offer advice and disseminate its findings. Its remit covers all of tertiary education, not just universities. CQAEHE reports to the Minister, but has a connection with the five Advisory Boards. Formally, the Centre initiates evaluations at the request of one of the five National Advisory Boards or, on rare occasions, by the Ministry. Considerable emphasis is placed on employer opinion. The staffing structure of the Centre is of particular interest in that 12 senior students are included along with 8 academics and 4 secretarial staff. So far, it is universities which have received most attention from the Centre. We noted, however, the evaluation of short-cycle technical programmes carried out in 1995.

The strategy of involving experts and peers from the field under scrutiny helps to secure both expertise and legitimacy. Further steps can probably be taken in that direction. A somewhat elaborate methodology requires the faculties concerned to carry out a self assessment exercise. Use is also made of reports by external examiners, user surveys (students, graduates and employers), quantitative data and site visits. Reports on the fields evaluated are published for the system as a whole, not for individual institutions.

Nearly all of the institutions that we visited and which had been involved in the quality exercise reported positively on the concept and on the self assessment part of the exercise. The latter, in particular, has had the effect of concentrating attention on mission, objectives and outcomes. In one instance, a senior faculty member reported that the exercise had resulted in a sea change in attitudes with greatly improved enthusiasm and morale. There were also some negative comments from universities (but not colleges) that the process was superficial and ineffective. Such observations were, however, in a minority, and may have reflected the challenge which this ambitious and complex exercise has in maintaining an adequate depth of inquiry across all fields.

There was also some criticism from institutions concerning the adequacy of measures for follow-up after an evaluation. Once it has re-visited and conferred with an institution on the findings, CQAEHE does not have responsibility for follow-up. This is largely left to the institution itself. For its part, CQAEHE believes quite strongly that it should not have follow-up responsibilities. Nevertheless, it is a subject which the Ministry may care to consider, and we comment further on it below.

As experience grows and adaptations to existing processes are considered, we suggest that consideration could be given to broadening the approach to evaluation so that, in addition to completing the programme of faculty or field reviews, there are reviews of entire institutions. There are various approaches that could be adopted in evaluating entire institutions. Broadly speaking, the focus can be on the quality assurance mechanisms that universities, colleges and those vocational schools offering short-cycle courses have in place and the appropriateness of these to missions and objectives; or the focus could be on actual outcomes. In the latter case, there is likely to be need for a good deal of quantitative information.

Where outcomes, e.g. students' learning, are the subject of review there is a methodological problem of 'value added' which ought to be considered if quantitative results across a system are to be fairly compared. For example, if the academic progress and performance of students in a university which recruits students from the top of the pool is no better than the record of a university which enrolls students with lower average examination results, then the latter institution presumably is doing a better job in teaching and learning and due allowance ought to be made. This will become an issue of greater importance as enrolment grows and the backgrounds and interests of the student population become even more diverse.

When the evaluation is of entire institutions, there still needs to be some definition of major substantive areas. For example, the broad topic could be teaching, research, links with the employment sector, or relevance or contributions to community life. Alternatively, management procedures or the decision making structures may be the subject of evaluation. In our view, there would be value in stimulating discussion of the quality of the first years of tertiary education; what do institutions aim to achieve? what do students want and what are their experiences? how are the claims for a relevant curriculum balanced with the idea of an education which, in the terms of the background report prepared by the Ministry for this thematic review, should also be seen as an end in itself?

As noted above, reports are for the system as a whole, not for individual institutions. This may have been behind the criticism we heard in one or two places that there had been no visible impact in their institution. Consideration needs to be given to assuring that findings are treated seriously and appropriate recommendations are implemented. We have already observed that, quite apart from conclusions that are reached, the evaluation exercise itself is likely to induce beneficial responses in institutions. We heard, however, some criticisms and even a little cynicism regarding implementation of some of the tougher conclusions.

The Danish system for evaluation and quality assurance has no direct financial implications as in some of the U.K. funding council operations; or monetary redistribution as in Australia where the carrot approach has been used to reward good performers with substantial cash 'prizes'. More indirect financial influence may derive from changes in student programme (or institutional) choices which are informed by the result of the evaluations. Such changes, via the operation of the 'taximeter', would eventually alter the block grant funding distribution. While students are aware of, and participate in, the evaluation process, there is no indication that such information as may be widely available is at present influencing their choices.

Overall, we felt that the methodology used by the Council may be a little too complicated, and that steps are needed to make sure that results are taken seriously by tertiary education institutions. Reports to individual institutions would be a step in this direction, and so would decisive follow-up procedures. There also could be a greater sense of ownership of the exercise by the institutions generally. Finally, there is the opportunity to make greater use of the reports from specific reviews for secondary analyses of general issues in academic disciplines and professional fields.

External Examinations

Unlike most OECD countries, Denmark has a long-standing commitment to the use of external examiners as a means of quality assurance for the academic standards of first degrees. This helps to build confidence that standards are comparable across similar fields or disciplines. One advantage of the system of external examinations is that it complements the 'taximeter' system of funding. A general criticism of output-based funding using students' scholastic attainment or progress is that institutions will be tempted to

lower standards in order to attract additional funds. The review by the CQAEHE has found no evidence that this is a problem in Denmark, and it seems likely that the external examiner scheme has contributed to this.

We understand that external examiners may comment on the content of programmes as well as on standards.

The use of external examiners is costly to the departments concerned. Taking note of this, a review of the CQAEHE has recommended that quantity is traded off against improving the quality of external examinations. While we understand and agree with the circumstances and judgements leading to this recommendation, we are concerned that the implementation of this recommendation would imply overly long periods between visits and assessments of external examiners and so reduce their impact and value.

Improving Teaching and Learning

The chief national initiative towards the advancement of quality in tertiary education teaching is the newly-established Centre for Technology-Supported Teaching. Despite the fact that at the time of our visit the Centre had been in action for only a few months, its programmes were known in all institutions we visited and had stimulated numerous applications for grants.

We were informed that there is extensive computer literacy among Danish students and that, where necessary, they learn to use computers as a professional tool. On the other hand, computers are not widely used as a tool for learning. Computer-aided instruction is not yet widely practised, even in language teaching. It will be one of the tasks of the Centre to promote computers as a pedagogical aid in Danish tertiary education.

The development of software is an expensive process. Rather than have numerous institutions working on the same problem the Centre, with the aid of its grants, could encourage teams within disciplines and fields to develop higher education materials which can be used in more than one location. Further, it should be possible to draw from the large amount of good quality educational programs available internationally. Some of this will have relevance for tertiary education in Denmark; but first these need to be evaluated from a Danish perspective and to disseminate those that are found to be useful. In this respect, it could be useful for links to be established with the Computers in Teaching Initiative in U.K., the Council for the Renewal of Undergraduate Education in Sweden and UniServe in Australia (among others).

In drawing attention to computers as an aid to teaching and learning, we do not envisage that technology should be a substitute for other, well-attested methods. For one thing, the efficiency of the new technologies has yet to be established; for another, the effectiveness of computers is greatest when there has first been a pedagogical analysis of teaching-learning problems. It can then be determined whether and if so in which ways the new technologies contribute to a solution.

Despite some exciting developments in educational technology, learning remains as much a social activity as it is a cognitive one. Students themselves are a significant resource for teaching. These principles are widely recognised in Danish tertiary education where advanced students are employed to teach junior students, where small group work is encouraged and where student counselling is in the hands of senior students. We also noted the important role given to students in the evaluation of teachers and courses. These and other sound practices should not be lost.

Some Danish universities and colleges are world leaders in the application of problem-centred learning and multi-disciplinary learning across the curriculum. At the same time, there are other institutions where, as one student told us when we asked for examples of innovations in teaching, that her teachers "now use coloured chalk". Even in a compact country like Denmark, there is a need for greater dissemination of new ideas and materials for tertiary teaching and learning. There may be a role here for the Centre on Technology-Supported Teaching. Alternatively, it may be appropriate for the creation of a more broadly-based agency with grants for innovations (not just in technology) and a mission to disseminate and promote change. The Committee for the Advancement of University Teaching in Australia and the Council for the Renewal of Undergraduate Education in Sweden are examples.

Teaching and Research

At all of the universities we visited, the importance of the connection between research and teaching was stressed. We were told that this nexus is regarded as of such great significance that universities would be reluctant to endorse bachelor's degree courses being conducted in non-research institutions. We appreciate the broad argument that the knowledge-base of courses in tertiary education benefits from a close association with research. But, although we found examples of exciting developments in multidisciplinary research, there was not much evidence that these had inspired the teaching of students in their first years of university studies.

Further, we are not convinced that the research link means that every teacher in the university has to be a 'hands on' researcher. In fact, there seems to be little empirical evidence in the international literature to support the contention that being involved in research is a necessary condition for quality teaching. In all countries participating in this review, first-years teaching is in the hands of academics with widely varying degrees of engagement in research. There are many examples of sound teaching by non-researchers. On the other hand, there are good reasons to introduce a research dimension into the first years of tertiary education, for example, through links with post-graduate study, student research projects and the systematic use of research findings. In these ways, more active learning is facilitated and an inquiring, critical attitude fostered.

We noted above that, whereas funding is linked to learning outcomes (the 'taximeter' system), as yet research funding is not strongly related to indicators of performance. This may be no bad thing. There is growing concern in countries where research performance is used as an indicator for funding, that the status and quality of teaching can be threatened because of internal university pressures to win grants, publish etc.

Importantly, our view of the interplay between teaching and research encompasses all of tertiary education: all tertiary-level students should be exposed to teaching informed by research and have access to state-of-the-art research findings. Staff whom we met in the colleges offering medium-cycle programmes already are engaged in research activity of an applied nature; those involved in short-cycle courses were no less interested in research, and referred to informal contacts with university staff in associated fields within, and increasingly in university-level institutions and programmes outside of, Denmark. The possibilities for fostering more than ad hoc links between the different tertiary sectors for the creation and dissemination of knowledge should be foreseen; the National Advisory Boards might wish to consider whether new means might be put in place to encourage their development.

The relation of research and teaching in tertiary education is likely to assume greater significance in Denmark, not least as the bachelor's degree is advanced and as funding becomes more strongly linked to

outcomes. We urge the academic community to bring the same critical scrutiny to teaching and to its links with research, that they would to a problem in their own discipline.

Quality of Staff

Rules introduced in 1993 require all newly-appointed teachers to be supervised and evaluated with regard to teaching; some institutions have sought to extend such programmes to all teaching staff. However, the existing incentive structure appears to work at cross-purposes with the new rules. When we asked institution administrators and staff what rewards there were for excellence in teaching the answer was generally "not many" or "we give them more teaching!" There are prizes and awards which help to give status to the teaching role, and some institutions may give special leave to staff who have definite teaching interests to develop. But, given the employment and wage structure for an academic career, it is difficult for Denmark's tertiary education institutions to take teaching performance into account when making promotions.

The very large proportion of part-time or temporary staff used in academic teaching is not in itself a problem for a high quality teaching program. There is considerable benefit in drawing expertise from outside the institution, and many part-time and temporary staff have a high level of commitment to teaching. Nevertheless, there can be a tendency for more serious and experienced academics to concentrate on their research and on post-graduate or senior-level students. They need to work closely with part-time and temporary staff in ensuring the best possible teaching in the first years of tertiary education.

The advent of mass participation is testing the validity of old assumptions about teaching and learning in tertiary education. It can no longer be assumed that all students have similar backgrounds, preparation and interests; indeed that assumption was never true. In any event, a major challenge for teaching at all levels is to maintain the high standards which are due not least to placing the student-teacher and the student-student relationships at the centre. Among the many favourable aspects of tertiary education in Denmark, the accessibility of teaching staff to students may be the most critical and most important in this regard. Accessibility could be put at risk by the gradual increase in student-staff ratios, in the absence of further adaptations in the contexts and methods of teaching and learning.

Governance, Planning and Co-ordination of the System

The University Act and related other Acts and reforms introduced substantial change in the management and financing of tertiary education, all seeking to free up the possibilities for institutions to respond to demand -- and to encourage them to do so with greater attention to relevance, quality and efficiency.

The University Act, which came into force on 1 January 1993, introduced new powers for leaders and collegiate bodies. With regard to the former, the Act sets down clearly defined responsibilities for decision-making among rectors, deans, heads of departments and course supervisors. The authority of the Rector is enhanced and he (or she) will have a management structure with delegated authority. There is now wide flexibility to secure institutional revenues from different sources and in the ways these revenues (including government funding for teaching) can be spent. The management of education and of research are separated.

The Act calls for reconstituted collegiate bodies which, for the first time requires university senates and faculty councils to have two external representatives as well as representatives of different staff groups and students. Such bodies now have increased oversight of programme and institutional development. In general, the reforms are seen by students to reduce their influence. Nonetheless, student input and influence remains considerable. As we were informed, the new law applies to universities, but is also under consideration for the colleges. Governance and management of vocational schools offering short-cycle tertiary education were the subject of a separate reform, which differed in detail but moved in the same direction.

A reform of the financial management of medium-cycle and long-cycle tertiary education courses was implemented in 1994, as a result of policy measures to decentralise the direct management control of the institutions (from the Ministry, as envisaged in the University Act and the 1992 Pluriannual Agreement) and to create greater correspondence between funding and actual success in courses (shift funding to an 'output' base, via the 'taximeter' system). As already mentioned, the new system of financial management means that the universities and colleges decide how to allocate their budgets, within the block grant provided from the government as calculated by the 'taximeter'.

Again, vocational schools offering short-cycle tertiary programmes are financed on the same principle, with some variation in details. In particular, the schools are funded on student enrolment, rather than on the basis of passed examinations. However, schools do not receive funds for students who repeat a course. Funds are allocated separately for administration and building, with all three funding streams combined into a block grant to the institution.

These reforms are in their early days of implementation. While there is evidence of good will and adaptation within the institutions, change appears to be uneven. In this new context, the Ministry will need to be looking into the changes now underway and to be seeking ways to support development of the most promising responses in order to assist the institutions and accelerate the process. Partly in continuation of past practice, the Ministry retains authority to approve study programmes and courses, a regulatory power that permits control on overall provision. Further, as in a number of other countries, financing mechanisms can be used to influence the decisions and actions of both prospective and actual students and of the institutions in which they enrol. Both 'taximeter' and special-purpose funding can be used to strategically advance development; we discuss both financing mechanisms in greater detail in the section on 'Costs and Financing' below.

Decisions on the approval of study programmes and any other matter are informed by the work of Ministry staff and advice provided by the National Advisory Boards for Higher Education. As already mentioned, there are five such boards, covering the fields of technology, social sciences, natural sciences, humanities and health education. Vertical integration is a feature of this structure, in that each advisory board has a brief to cover everything from short-cycle programmes in Commercial Schools and Technical Schools to long-cycle programmes in the universities, in their respective fields. This arrangement provides greater possibilities for overseeing cross-sector coherence, co-operation and links. A Chairmen's Conference, comprised of the chairs of each advisory board, meets to undertake transversal tasks, to ensure co-operation in the work of the boards across fields and to provide more general advice to the Minister. Each chair also has responsibilities in another council, covering such issues as student support or technical education. The arrangement is working well and should be of interest to other countries.

One possible anomaly which we noted was the overlapping briefs of the National Advisory Board for Technology and the Council for Further Technical Education (CFTE). The latter, a 22-member body, was established as a statutory authority following the 1988 'pink paper', and it employs a staff of 55 persons seconded or funded directly by the social partners. Its remit is to advise the Ministry concerning

education of professional technicians undertaken in short-cycle courses which are typically of around 1 to 2 years in duration. About 3 000 students enrol each year. The Council does much of its work through four sub-committees, each of which covers an occupational field (manufacture; building and construction; foodstuffs; and agriculture).

We understand the complex range of issues on content, structure, aims, student backgrounds and interests, new demands on management and decision-making which arise particularly in this area of tertiary-level provision. Many of these issues are being addressed in sensitive ways by the CFTE -- not least through the formal and informal discussions among interested parties and with governors, administrators and staff at the schools concerned. However, in view of the relatively small number of professional technician students, the areas of overlapping roles and interests of CFTE and the Advisory Board for Technology and the need for advice which is not only consistent but can formally take account of articulation needs with other sectors, the Government may consider that eventually the functions of the two councils could be carried out more effectively by a single body, taking into account the need to be responsive to the unique circumstances and issues in this area of short-cycle provision. We give particular weight to linkages and coherence in tertiary education as a whole, and it may be appropriate therefore to locate this work in the National Advisory Board for Technology.

Another place where it seemed to us that there could be a little more provision for co-ordination of advice and policy is between the several Ministries with responsibilities for tertiary education. The Ministry of Labour has responsibility for a number of labour market programs (funded through a special tax). The Ministry of Culture has responsibility for the professional education of architects and others, the Ministry of Health has responsibilities for the accreditation of health workers. As outsiders we wondered if the dispersion and complexity of responsibilities is the most effective arrangement, particularly in a period when the Government is concerned to increase flexibility in the system, to promote credit transfer and to encourage collaboration across institutional boundaries.

Finally, in general, we have noted that there is a need for better data and analysis on a range of matters: access and equity, student selection and academic progress, job destinations and subsequent careers of graduates.

The Regional Dimension

We have already referred to the unevenness of student demand across vocational fields and across geographic regions. Institutions outside of the capital experience some difficulties in attracting all the students they would like to have. In one meeting, we were told that "students won't travel more than 25 kilometres". Educational institutions are an important element in regional development, bringing a significant multiplier factor to the local economy as well as contributing significantly to social and cultural life. There is also the possible gain of the contribution of graduates who choose to enter employment in the region where they received their tertiary education.

At the same time, from a perspective within education, there is an intention to facilitate amalgamations for reasons of both efficiency and effectiveness. Teacher education colleges and technical colleges were among the instances reported to us. In the case of teacher education and some other medium-cycle professional courses, there is a strong argument to bring the curriculum and teaching closer to research for the purposes of liveliness and access to state-of-the art knowledge. Moves in this direction and the possibilities for economies of large scale need to be balanced against the strong coherence and identification with a profession which is often engendered in a single-purpose institution and the contribution which an educational institution makes to its immediate region.

The balance is not always easy to achieve, although the present situation might be improved through stronger co-operative links between different as well as similar programmes at different institutions. With respect to the latter, the Danish Tourist Academy is an example of how co-operation between providers (in this case, two Commercial schools) can lead to what appears to be an efficient, balanced response to the needs of the labour market while retaining the separate individual institutions. However, links could be forged between different programmes as well. Such links could include the engagement of one or two members of the teaching staff on a part-time adjunct basis at another institution, projects which involve students and staff from different institutions, and shared access to libraries, laboratories and other facilities. Examples of such arrangements exist in Denmark and other participating countries, and they could be strengthened.

Costs and Financing

On a per student basis and taking into account differences in income among countries (approximated by per capita GDP), education expenditure at tertiary-level institutions was somewhat below the OECD average in 1993 (the most recent year for which comparative data are available). This expenditure derives from public funds; tuition is free. To this should be added public financial support provided to students, which in Denmark as in other Nordic countries is above the OECD average. Grants are available for six years of study, not necessarily consecutive years. This policy may help to support a longer period of 'studenthood', as discussed earlier.

The innovative 'taximeter' system of funding of institutions and students appears to have shifted the balance between the principle of open access and choice on the one hand, and the high overall costs on budget and indirect costs of delayed entry into 'regular' employment on the other. The 'taximeter', as already mentioned, is a form of output- or performance-based funding by which institutions receive a substantial proportion of their base grant according to the number of 'active' students, i.e. students who have passed and are actively pursuing their studies (as noted above, the 'taximeter' system for short-cycle programmes is similar in concept, but differs in detail). As far as we know, Denmark was the first OECD country to use this form of performance-based funding. The two other countries which use it for base funding are Sweden and the Netherlands.

The 'taximeter' system is applied to the entire range of tertiary education and to student grants. Overall, the idea seems to be working well and is supported by institutions. It has concentrated attention on the progress of students through their courses and on adequate record keeping. It also, in comparison with the incentives present in funding approaches in some other countries, has more favourable equity effects (in some other systems, students who do not pass exams can lose grant support during the period in which they retake the course or year; such a loss is a greater hardship for young people from lower income groups). Negative comments concerned possible inequities in the weighting of courses (i.e. the different 'taximeter' rates) and, in some of the smaller institutions, the need to buffer budgets from the effects of unpredictable annual variations in income. Such a buffer exists, in practice, in the funding arrangements established for vocational schools offering short-cycle programmes.

One issue is how to minimise the unintended, perverse consequences of the incentives put in place by differential funding levels. This would be the case, for example, when joint programmes are developed to fill places in a department or faculty that has difficulty in attracting enrolments. While the incentive for co-operation among faculties and programmes must be seen as a favourable feature of the funding system, the resource incentives should not assume greater importance than quality and relevance. As it is very difficult to build sufficient sensitivities into funding regimes, there is a particular need here to

back up innovative adaptations encouraged by the funding regime with effective quality assurance mechanisms. The issue, put in positive terms, is how to introduce sufficient flexibility so as not to inhibit the introduction of innovations, such as part-time degree study or credit transfer across courses and institutions.

In the devolved system now in place in Denmark, attention might be given to extending further the use of strategic, special purpose funding to encourage development which addresses national priorities. Resources for such a fund might be found from savings realised if a larger proportion of a student cohort terminates after the bachelor's degree and from reduced drop-out. A somewhat more controversial area for potential saving is the student grant: in line with the progressive implementation and further development of the bachelor's degree, could eligibility for the student grant be perhaps be reduced by a year? In the case of younger students, is there scope for means testing? In either case, steps would need to be taken to ensure that finance is not a barrier for continuing studies; the terms of and experience with student loans and new approaches to parent and other third-party participation in financing would need to be examined. Importantly, the value of any modifications in the present funding regime or the introduction of complementary new approaches for financing resides as much in the incentives introduced for changed behaviours -- with regard to, e.g. the duration of studies, the development of new forms of teaching and learning, the encouragement of new forms of involvement of enterprises which give them a more direct 'stake' in tertiary education programmes -- as in the additional resources, both financial and human, mobilised for tertiary education.

The 'taximeter' system itself could be used more strategically, to encourage the use of the bachelor's degree as the standard, initial qualification. This of course does not mean that education should cease at this point. Elsewhere we have elaborated on the need for a comprehensive concept lifelong learning. Students who enter the labour force after a bachelor's degree should feel confident about their options to return for a master's degree programme or specialist postgraduate work including part-time study. Such options already exist and constitute growth points for development which could be encouraged through financial incentives in the 'taximeter' system or via specialpurpose funding.

Conclusions

Our visit to and discussions in Denmark reinforced the impression of a country which attaches great importance to the social, cultural and economic value of education at all levels and respects the educational choices of individuals. Reforms undertaken in recent years have strengthened the realisation of that commitment for an even greater share of youth, young adults and those of mature age, all seeming to open even wider the doors to tertiary education. The challenge to Danish policy makers and those within institutions is to put in place ways to ensure that those now entering tertiary education can find and succeed in learning opportunities appropriate to their needs and interests and contribute to the economic and social advancement of the country. The steps taken thus far represent, at the same time, bold departures as well as targets for further development. Our conclusions thus seek to identify areas where effort could build on existing strengths and promising new directions.

Access and participation has, almost by definition, improved with the growth in tertiary education enrolments, now estimated at 47 per cent of those completing secondary school. That growth notwithstanding, differential patterns of access and participation by social class and gender can be seen, overall and by sector and programme. As in other OECD countries, such differentials represent continuing targets for policy action and programme development and adaptation. Improvements in this area would imply not only progress in terms of social fairness, but also development of the human resource for meeting evolving requirements from changes underway or sought in the Danish economy.

This broader perspective on access and participation also casts the phenomena of failure, drop-out and progress to programme completion in a different light. Far from being just a problem of what some may identify as inadequate or inappropriate secondary school preparation or of poor selection mechanisms, drop-out rates of 20 per cent (up to 40 per cent in some programmes) and extended periods of 'studenthood' must also be seen as a consequence of the rigidity of programmes, teaching and learning within and among the different sectors of tertiary education. As numbers increase, all tertiary-level programmes should be expected to revise or modify or adapt curricula and to strengthen teaching practices in order to accommodate the greater diversity within the student population and the more varied demands, and new career paths, likely to emerge from changes in the Danish economy. The means to do this are at hand in several cross-sector arrangements (among others), and there are examples of very progressive developments in some institutions. The government's support for further development of Open Education and credit transfer, in our view, is also another step in the right direction. These permit even greater responsiveness by allowing students to find their way through tertiary education, with a minimum of 'wasted effort' (when, for example, they confront 'snakes' rather than 'ladders' or 'bridges' in moving from one programme to another). It will be important, in all of these developments, to ensure that procedures for quality assurance and continuing reflection on educational processes are in place.

The introduction of 'output'-based funding in the 'taximeter' system accompanied by devolution of administration and management responsibilities represents a substantial change for tertiary education providers in Denmark. Adjustment to these reforms is continuing, and there is still scope for development of the managerial and leadership capacities required. There will be wide international interest in the impact of the performance-based component in 'taximeter' system of funding. The specific use of examination results aside, we believe that the formula strikes a reasonable balance between sensitivity to individual and programme circumstances on the one hand and, on the other, more transparent incentives to influence choices of students and autonomous tertiary education providers. Whatever future adaptations are made in the 'taximeter' system, it should continue to be backed up by quality assurance efforts which blend internal with external approaches, balance programme and institution-wide assessments and are based on transparent and highly efficient procedures.

We have noted possible advantages for extending the use of targeted, special-purpose funding (building on experience with the Centre for Technology-Supported Teaching) and for diversifying the financial and resource base in tertiary education through participation by students in the costs of their own education (as in Open Education, but always with the need for safeguards to ensure that no one is excluded owing to a lack of finance) and through the participation of employers (via fees for contract courses and partnership in teaching and learning). The principal advantage is the stimulus such financing and resourcing approaches introduce for further adaptations in programmes, teaching and learning. Any additional resources made available need to be seen as a complement to, not a replacement for, the commitment of public funds.

The introduction of what was referred to as an 'Anglo-American system of degrees' on top of the existing continental European structure ought to provide the stimulus for a national debate on where the system should be going and lead to a clear framework for planning the changes. In the Scandinavian tradition, government treats institutions equally and regards all programmes as equal. In the Anglo (especially North American) approach, governments stimulate the diversity of institutions, a variety of provision and quality comparisons between them. Will Denmark follow this latter direction?

Devolution should lead to greater diversity. It can also lead to inefficiencies, but it should be recognised that such inefficiencies often are more than offset by the energy and innovation which can come from local autonomy. In this respect, the role of the Ministry needs to be seen as more 'strategic':

monitoring development; fostering co-operation among all parties so that all interests -- not least, those of the students -- are taken into account and no single interest dominates; supporting research and evaluation studies; and applying a balanced mix of 'sticks' and 'carrots' to encourage innovation and lightly steer development. At present, there are rather more sticks than carrots and too little information for strategic policy development at national and institutional levels on such matters as drop-out or programme transfer, initial and early career employment destinations and mobility and experience with new approaches to teaching and learning (the latter to be more widely disseminated and perhaps further stimulated through special-purpose funding).

We saw some evidence of the impact of the reforms when we visited universities, colleges and vocational schools. By and large, in the institutions there is good will and enthusiasm for the changes in governance, management and financing and a sense that programmes need to be even more closely attuned to the interests, backgrounds and more varied and dynamic career profiles of graduates. Students, the social partners and the government seem to be in broad agreement with the directions, if not the details, set out in the reforms and that their implementation is being handled sensitively and fairly. But, notwithstanding the good will and broad consensus, in some places old habits die hard. There is opposition in some quarters of the university sector to bachelor's degrees, not much action yet on proposals for credit transfer and only limited breaking down of barriers between the long-cycle, medium-cycle and short-cycle courses. An environment of collaboration among all the players exists and could be further enhanced, again through Ministry encouragement.

It is not just a shorter first degree or devolution which are the issues focusing debate at the present time. Also to be considered is the nexus between teaching and research which is strong in all continental European countries, but which requires much more careful consideration and development than the use of such contentions as 'university teaching must be (or is) research-based'. Every student in tertiary education should have access to state-of-the-art knowledge and be exposed to teaching informed by research. Indeed the rapid developments in information and communication technology have brought this possibility to the fore whether or not institutions take a lead. And, as mentioned above, of basic importance is the purpose and content of the first tertiary qualification recognised on the labour market: on the one hand the extent to which it should be made 'relevant' to employment; on the other whether the Anglo (especially North American) belief that general liberal education should not cease at the point when students enter tertiary education.

If the bachelor's degree proposal is successful, its implementation will help to define the type and duration of (at present) university study. But there are many other questions relating to structures, to the processes of teaching and learning and to the content and objectives of the student experience through the full range of the first years of tertiary education. Some of these were raised in our discussions with the academic community. Others which seemed important to us were not. In particular we had lively discussions concerning the 'how?' questions such as on improving teaching and learning, student support services, the transition from secondary to tertiary education, use of information technology etc. But the 'what?' questions of the content and objectives of a suitable curriculum for the mass era were not raised; or rather in universities, more so than in commercial or technical schools offering short-cycle programmes, it was asserted that the current curriculum is quite adequate.

At times we felt that although the era of large volume participation has arrived, some academics' attitudes have yet to catch up. There are traditional and 'elite' values, for example regarding education of the intellect that are of the utmost importance and must be retained. But at the same time all institutions and staff have to adapt to the current realities of mass participation, new expectations for relevance and consequences of costs. This much will be needed if the government reforms are to have the effect, as it has been expressed for universities, of moving tertiary education 'from a position of elevated isolation to a position deeply involved in the development of society'.

Table 1. Net enrolment in public and private tertiary education by age group, by type of programme, 1994
(based on headcounts)

	Ages 18-21		Ages 22-25		Ages 26-29	
	Non-Univ	Univ	Non-Univ	Univ	Non-Univ	Univ
Australia	8.7	20.5	5.2	8.4	3.8	4.7
Belgium 1	18.9	18.5	6.6	8.1	2.2	1.7
Denmark	1.5	7.6	3.1	19.0	1.6	9.4
Germany	2.4	8.7	1.7	15.5	1.7	8.6
Japan	m	m	m	m	m	m
New Zealand	7.1	23.8	3.8	10.1	2.5	4.8
Norway	7.9	9.3	6.2	17.4	2.7	7.6
Sweden	x	12.3	x	15.3	x	7.2
United Kingdom	4.8	18.7	2.6	5.8	1.6	2.8
United States	13.6	21.3	6.6	14.4	3.9	6.5

Note: Data refer to all enrolment, not just first years.

1. Flemish Community as follows: Ages 18-21: 18.3 (non-univ), 18.2 (univ);
Ages 22-25: 4.4 (non-univ), 7.0 (univ); Ages 26-29: 2.1 (non-univ), 1.1 (univ).
(data supplied by Education Department, Ministry of the Flemish Community)

Source: OECD, Education at A Glance, Paris, 1996, Tables P6.1, P6.2, P6.3.

Table 2. Age distribution of university-level graduates, 1994

	Age at 25th percentile	Median age	Age at 75th percentile
Short first university degrees (e.g. U.S. Bachelor's)			
Australia	20	22	26
New Zealand	22	23	25
Norway	23	24	28
Denmark	21	26	32
Sweden	24	26	29
Long first university degrees (e.g. German <i>Diploma</i>)			
Belgium 1	23	24	25
Norway	23	25	27
Sweden	25	26	30
Denmark	23	27	29
Second university degrees (e.g. U.S. Master's)			
Belgium 1	24	26	32
Norway	25	26	29
New Zealand	23	28	37
Denmark	27	29	32
Australia	26	30-34	37
Sweden	27	30-34	37

Note: Countries are ranked in descending order of median age of graduation for each group of university degrees.

1. Flemish Community as follows:

Long first univ. degree: 23 (Age at 25th percentile), 24 (Median age), 25 (Age at 75th percentile)

Second univ. degree: 25 (Age at 25th percentile), 26 (Median age), 30 (Age at 75th percentile)

(data supplied by Education Department, Ministry of the Flemish Community)

Source: OECD, Education at a Glance, Paris, 1996, Table R12.3.

Table 3. Admissions to Higher and Further Education: 1960 - 1996

1960	7 920
1965	11 960
1970	15 280
1975	20 110
1980	17 476
1985	25 325
1988	25 843
1990	34 700
1996	47 000

Sources: Woolston, Valerie A. and Karlene N. Dickey, Denmark: Country Report, PIER World Education Series, AACRO/NAFSA, 1995, pp. 34-35; Ministry of Education, *Thematic Review of First Years of Tertiary Education: The Danish Report*, 1996.

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