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INSPECTORATE

Post-16 Vocational Education and Training in Denmark

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PREFACE

This is the first of a series of publications planned by the Further Education Funding Council's inspectorate to build up knowledge of the post-16 vocational education and training systems of other countries in order to highlight those aspects which might inform thinking in England in particular and the United Kingdom in general.

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COMMENTARY

1 This report is based on a visit by a team of three inspectors and one member of the education programmes division from the Further Education Funding Council of England and two officials from the Department for Education to Denmark in February 1994. The purpose of the visit was to examine post-16 vocational education and training provision in Denmark and to highlight those features which might have implications for England.

2 The Danish education service operates within a coherent and workable legal framework which enables high standards to be set and achieved. Features of the Danish vocational education and training system, which provides Denmark with a well-educated and trained workforce, include:

- clear national aims and objectives for all aspects of education and training
- the commitment to and value placed on education and training by Danish society
- the close and productive working relationships between the employers, unions, government and the education service
- the high participation of young people and adults in post-secondary and higher education, and in vocational education and training
- the generous financial support of students by employers and government which fosters high participation in education and training
- government control, through the Ministry of Education, of final examinations, which helps maintain consistent national standards
- well-resourced and adequately-maintained colleges which provide an attractive working environment for students and teachers
- relevant vocational education and training curricula which are developed by the employers and unions in partnership with the education service at national and local levels
- the broad basis of academic and vocational curricula where recognition is given to the importance of competence and knowledge in preparing people for immediate employment and for life-long employability
- the emphasis placed on the acquisition of foreign language skills by all students which recognises Denmark's dependence on the global market
- a coherent, national framework for guidance which spans

school and college and motivates young people's participation in education and training up to the age of 21

- a second-chance system which allows students to improve their basic education and gain a recognised qualification
- clear routes of progression through academic, commercial and technical courses.

3 There are, however, some negative features of which the Danes are aware and which they are taking steps to remedy. These include:

- shortages of apprenticeships and training places
- deficiencies in the simulated work experience provided by colleges which do not provide the same benefits as work-based training
- high drop-out from the first year of upper secondary education which is insufficiently analysed and monitored.

4 The Danish vocational education and training system has consistently provided the country with a highly-skilled and educated workforce. This has enabled the country to move, over a few decades, from a largely agrarian to a modern industrialised society. The education service has also made a major contribution to the establishment of a society that has achieved a consensus in most matters, not least the development of social, industrial and economic policy. This consensus has enabled the government to introduce new policies in the public sector designed to make the sector more competitive, efficient and effective with the minimum of fuss and disruption. Education, and vocational education and training in particular, has been one of the targets for these changes which are intended to decentralise the control and decision-making processes.

5 In the early 1980s the Danish government realised that centralised control of vocational education and training was hindering colleges' ability to respond rapidly to changes in the labour market stemming from the introduction of new technology. It moved rapidly to introduce legislation to replace the detailed central planning under which the system had operated for many decades. In a move similar to that recently introduced in England, colleges were privatised, a new funding regime was introduced, vocational education and training curricula were simplified, students were allowed a free choice of college and the roles of college boards were strengthened.

6 However, the vocational education and training system still faces a number of problems. Despite a generous levy/grant system which reimburses employers for a substantial proportion of the costs of providing training places for young people, insufficient training places have been created to meet the demand. College-based training schemes help alleviate this deficiency.

7 A problem, familiar to English colleges, is the high drop-out from vocational education and training courses. Ninety-three per cent of those completing compulsory education enrol in some form of general or vocational education and training. However, 20 per cent of the cohort drops out of education without completing their programme of study or changing to another programme. Drop-out rates are highest from the technical colleges. Causes of drop-out which have been identified are the inability of some students to cope with the intellectual challenge of the theoretical part of their course and their lack of stamina in coping with the normal three to four-year vocational education and training programme offered by the technical and commercial colleges. Another problem is the inability of teachers at vocational colleges to deal with the wide ability ranges which comprise these classes. These are problems with which English FE colleges are having to cope as participation rates in England move nearer to the Danish level. Two solutions being piloted at present include the introduction of shorter one-and-a-half to two-year programmes leading to an intermediate qualification and the integration of the last year of *folkeskole* with the first period in the vocational colleges. The latter bridge-building process between school and college has been quite successful. Early monitoring of the scheme indicates that drop-out rates have been lowered and that pupils have been motivated more than those following the traditional entry patterns. This solution is not too far removed from that of introducing vocational education into the latter stages of the school curriculum as suggested in the *Dearing Report*. Other steps which have been taken to reduce the drop-out problem include improved careers education and guidance provision, recognition of less formal forms of youth education, the introduction of new programmes designed to develop the skills needed in the developing areas of the economy, the development of provision for slow learners and late developers and the expansion of adult education to meet the general education and training needs of adults. It is rather surprising that the new *taximeter* funding system (paragraph 60) does not provide any direct incentives for institutions to improve their retention rates.

8 The Danish vocational education and training service has much of which it can be proud. Well-resourced colleges provide an attractive environment which has helped foster the very high participation rates which apply in all aspects of post-compulsory education. The partnership arrangement between employers, unions, government and the education service is a pattern other countries would do well to follow. The Danes have revealed a capacity to develop innovative curricula which recognise the importance of both competence and knowledge designed to meet not only immediate employment needs, but also to prepare people for life-long education and training to ensure that they remain employable throughout their working lives. Last, but not least, English visitors to Denmark cannot but be impressed by the English language skills of Danish pupils, students and teachers. Many of the trainees in catering, hairdressing and motor vehicle maintenance were

able to converse and explain the details of their course in clear and fluent English.

PURPOSE AND ORGANISATION OF THE VISIT

9 The purpose of the visit was to examine the roles of local and national government in Danish post-16 vocational education and training, and the governance, funding, management and responsiveness of Danish post-16 education and training institutions. The team also looked at curricula, qualifications, training programmes, provision for students with learning difficulties and/or disabilities, student counselling, guidance and support, participation, progression, levels and standards achieved in post-16 education and training programmes, quality assurance, the arrangements for the training of teachers, the role of industry, commerce and public sector employers, and physical resource provision.

10 It was not the team's intention to report on the quality of post-16 education and training in Denmark nor would it have been possible to do so on the basis of such a short visit. Rather the intention was to examine the current reforms in Danish post-16 education and to highlight those aspects which might inform thinking in England.

11 The business college, technical college and *folkeskole* visited are listed in appendix 1. In each institution, discussions were held with the principal, senior staff and students on such issues as institutional governance and management, funding arrangements, curricula, teaching and learning, links with employers, student support, quality assurance and arrangements for meeting the needs of students with learning difficulties and/or disabilities. Discussions were also held with officials of the Department of Vocational Education and Training and representatives of the Confederation of Danish Industry, and the National Union of Metalworkers.

ECONOMY AND GOVERNMENT

12 Denmark has a population of 5.2 million and a workforce of just under 3 million, of whom about 10 per cent are unemployed. About 70 per cent of the female population of working age are in employment. Sixty-seven per cent of the working population are employed in the service sector, 27 per cent in industry and 6 per cent in agriculture. In 1990, Denmark had a gross domestic product of about £90 billion and a GDP per capita of £17,000. Fifty-five per cent of its trade is with the European Community and its main trading partners are Germany, Sweden and the United Kingdom. It exports agricultural and industrial goods. Oil and gas are Denmark's only natural resources and practically all the raw materials required by its industry have to be imported. The public sector accounts for 60 per cent of GDP expenditure, which is high by international standards. Some comparative statistical data for Denmark and the United Kingdom are shown in table 1.

Table 1**Statistical data for Denmark and the United Kingdom (1990)**

	<i>Denmark</i>	<i>UK</i>
Population (million)	5.2	57
Workforce (million)	2.9	27
GDP (£ billion)	90	650
GDP per capita (£)	17,000	11,000

13 The good relations between management and labour and a highly educated and skilled workforce underpin Denmark's industrial efficiency. These features have allowed the country to achieve a good economic performance in recent years and to make a smooth transition from a largely agrarian to a fully industrialised society within a few decades.

EDUCATION AND TRAINING

14 In Denmark education is compulsory between the ages of seven and sixteen. Optional pre-school education is provided from the age of six. There is also an optional tenth year of secondary education undertaken by 45 per cent of the cohort, mainly students who are undecided about their future career or course of study, or who wish to improve their general education. Ninety-three per cent of those completing compulsory education continue their studies in the various youth education programmes. There are three types of youth education: technical, commercial and general upper secondary. Each of these attracts about one third of the school-leavers. Forty per cent of young people continue in further education and/or higher education after the age of nineteen. A diagrammatic representation of the education system in Denmark is shown in appendix 2. Denmark spends about £6 billion, 6 per cent of GDP, on education and training (table 2).

Table 2**Public education expenditure, Denmark 1992**

<i>Level</i>	<i>£ (billion)</i>	<i>%</i>
Compulsory	2.5	42
General secondary and vocational	1.2	20
Higher	1.5	25
Training	0.8	13
Total	6.0	100

15 Responsibility for education in Denmark is shared between the state, the 14 counties and 277 municipal authorities. Compulsory schooling is the responsibility of the municipal authorities and general upper secondary education is provided by the counties. Technical and commercial schools, some specialist colleges and all higher education institutions are funded directly, or subsidised, by the state.

Compulsory Education

16 There are nearly 2,400 primary and lower secondary education schools in Denmark which cater for nearly 650,000 pupils. Ninety per cent of children attend the state *folkeskole* in which they are taught in mixed ability classes which stay together with the same teacher throughout the period of compulsory education. Students with learning difficulties and/or disabilities are integrated within the school for longer or shorter periods of time as their needs dictate. Private schools, which cater for about 10 per cent of school children, receive state subsidies amounting to about 85 per cent of their running costs. Each school has a school board of five to seven members elected by and from the parents of pupils attending the school. The head teacher, two staff members, two pupils and, in some cases, one member of the municipal council participate in meetings of the school board but do not have the right to vote.

17 The Ministry of Education lays down the framework for the school curriculum but each school board suggests the detailed curriculum for its school, which must be approved by the municipal council. The curriculum consists of up to 11 compulsory subjects and optional subjects which are introduced at various points during the nine years of compulsory schooling. The Ministry of Education issues teaching guidelines for all the subjects of the school curriculum and teachers are free to choose how they teach. School-leaving examinations are taken on a single subject basis and are voluntary. There is no pass mark.

18 The compulsory school year is about 200 days. The maximum teacher to pupil ratio is 1:28 with an average of 1:19.

Youth Education and Training

19 The three types of youth education – general upper secondary, commercial and technical, each of which attracts about one third of the 16-19 year old population – are discussed below.

General upper secondary education

20 General upper secondary schools, called *gymnasia*, are generally run by the county authorities. There are about 150 such schools and a further 20 which are private. Admission to a *gymnasium* is open to students who are deemed qualified for study at this level by their *folkeskole* and who have performed satisfactorily in Danish, mathematics, English, German and a science subject in the school-leaving examination.

21 *Gymnasia* curricula are divided into two main lines: languages and mathematics. These curricula comprise both compulsory subjects, which are common to all students in both lines, and optional subjects, which are taught at two levels: intermediate and advanced. Typical *gymnasia* curricula are shown in appendix 3.

22 The three-year, full-time *gymnasia* courses lead to the upper secondary leaving examination, the *Studentereksamen*, which qualifies students for entry to universities and other institutes of higher education.

23 In addition to the *Studentereksamen*, another examination, the Higher Preparatory Examination (HF), is offered to students over the age of 18. This examination also meets the entry requirements for higher education. Unlike the school-leaving certificate and the *Studentereksamen*, the HF examination does not require attendance at either school or college. However, since in practice most people need tuition to help them pass examinations of this type, two-year full-time courses are offered by both *gymnasia* and other education institutions to prepare students for the HF examination. In addition, part-time day and evening courses are offered which enable students to complete the HF examination over three or four years on a single subject basis.

24 *Gymnasia* are run by a board with representatives of the county and municipal authorities, parents, students, community groups and the staff of the college. The Ministry of Education issues curriculum regulations and approves examination syllabuses. Again teachers decide how the syllabuses are taught and how the teaching is organised. The average class size is 25. The nearest English equivalent to the *gymnasia* are the sixth form colleges which now form part of the further education sector.

Vocational education and training

25 Vocational education and training for young people are offered by the 58 technical and 50 commercial colleges and in specialist colleges of agriculture, home economics and marine engineering. These colleges offer sandwich training courses which alternate school-based training with periods of practical training in a firm. General social and health training programmes are also offered to qualify those who intend to work in the welfare, health care and nursing professions.

26 Admission to a vocational training course is open to young people who have completed compulsory education. There are two routes into vocational training: the school route and the practical training route.

27 Students following the school route enrol at either a technical or commercial college on a 20-week course in which they are exposed to different trade areas and receive vocational education and guidance as well as theoretical instruction. One third of the programme is devoted to optional subjects. At the end of this period, students choose a specific trade area and continue with a further 20 weeks of school-based instruction. After this second period of instruction students attempt to

secure a training agreement with a firm for the practical training to continue. Those following the school route receive a salary only when they obtain a training place at the end of the first year.

28 Students choosing the practical route have to find a sponsoring employer who will offer them a practical training place on leaving school and pays them a salary from the outset. Such students spend the first 20-week period with their firm and go to school for the second 20-week period. Employers are reimbursed some of the costs of providing training places for students through the levy-grant described in paragraph 59.

29 In 1991, 75 per cent of students entering vocational education did so via the school route and 25 per cent via the practical route. The proportion of the cohort entering via the school route is large because industry has not been able to provide sufficient training places to meet demand. A further consequence of this is that colleges have been forced to provide simulated training places for those who wish to continue into the second year of the programme but are unable to find places. Such students are regarded as employees of the college with whom they sign their training agreement and from whom they receive a salary. Some students are unable to find a training place and remain at college for three years. Training places for such students are being sought abroad, particularly in England, Sweden and Germany and this is a strong motivating factor behind the desire of Danish colleges to establish international links.

30 The Ministry of Education, advised by the Council for Vocational Education, lays down the broad attendance framework for vocational education and training programmes. For example, a typical technical course will last for four years of which about 80 weeks will be spent at the technical college. Commercial courses typically last three years with 46 weeks in the commercial college. The curricula and the detailed attendance structure are laid down by trade committees which have employer and trades union representation. Students on vocational education and training programmes have a training agreement with a business or a group of businesses which contains information on salary and attendance requirements. The agreement cannot be terminated by one party only but the agreement is annulled if the student is expelled from school. Shorter one-year courses are available to less able students who are trained, for example, as shop assistants.

31 The general curricular framework for vocational education and training programmes is drawn up by the Ministry of Education. Such curricula generally comprise basic (one third), area (one third), specialised (one sixth) and optional (one sixth) subjects. Basic subjects provide students with a broad general education relevant to their chosen trade, while area subjects provide a general introduction to the practice and theory of a broad vocational area. It is through their specialised and optional studies that students learn the details of their trade.

32 Syllabuses are drawn up locally by the local trade committee. A typical vocational education course structure is shown in appendix 4. Assessment is based on continuous assessment and/or examinations set by the teachers with a final examination or trade test. General education is assessed on the basis of course work and final examinations. The Ministry of Education sets the final examinations and decides each year which subjects will be externally assessed. Examinations are marked initially by the class teachers and externally moderated. Vocational subjects are assessed and marked internally. Technical students complete a final practical test which is assessed by teachers and local employers. A 13-point marking scale is used throughout Danish education (appendix 5). There are 87 technical education and commercial education programmes. These programmes are different from anything yet available in England although they resemble a programme that might be formed by mixing General National Vocational Qualification (GNVQ) and National Vocational Qualification (NVQ) units.

33 General education plays an important part in vocational education and training and features prominently in the first year of the upper secondary school, occupying the students for as much as 50 per cent of their study time. The level of general education is somewhat higher amongst the students at the commercial college. Many of the technical college students will have remained at school for the optional tenth year to improve their basic education and to attempt to secure an apprenticeship. Teachers at the Roskilde Technical College said that many students are not committed to general education and that their practical skills take precedence. However, English language skills amongst students are impressive.

34 Both technical and commercial colleges offer higher level courses leading to the higher technical (HTX) and higher commercial (HHX) examinations. These are equivalent to the *Studentereksamen* but are more vocationally oriented. Both the HTX and the HHX qualify students for admission to higher education. Admission to these courses requires the completion of the second 20-week period of the vocational education and training course. These courses compare in standard with the Business and Technology Education Council (BTEC) National Certificate programmes offered by English colleges. The commercial courses generally attract the more academic students and 25 per cent proceed to full-time higher education and a further 20 per cent continue their studies on a part-time basis.

35 A new course in exports and marketing is offered by some commercial colleges. This is a two-year full-time course in which modern languages, economics and marketing subjects are studied. The third term of the second year is spent abroad. Each student is required to carry out an analysis and present a report on a company. This report, examinations and continuous assessment contribute to the overall assessment of the student's performance. Entrants to the course are

required to have passed the *Studentereksamen* or the higher commercial examination. The exports and marketing course compares in standard with the BTEC Higher National Diploma.

Adult education

36 The Danish term *Folkeoplysning* covers all activities taking place in evening schools for adults, in youth organisations and sports associations in which over 1.5 million Danes participate each year. Activities include training and retraining courses for employment, examination preparation courses and leisure programmes. These activities are funded by the municipal authorities through grants to the providers.

37 A range of short, specialised, modular courses are offered by a body known as the labour market authority which is responsible for the training and retraining of adults. These take place at special training centres run by the authority. The courses are designed to meet identified labour market needs. Participants are paid by the employers, the social services department and the labour market authority from central funds directed at the unemployed.

Higher education

38 Denmark has over 130 institutes of higher education, including five universities, attended by 115,000 students. A bachelor's degree course lasts for three years, a master's for a further two years and three years of supervised postgraduate studies lead to a PhD degree. In 1992, approximately 40,000 young people were admitted to higher education. The qualifying examinations are the upper secondary school-leaving certificate, the higher preparatory examination, the higher commercial examination and the higher technical examination. No tuition fees are charged but admission to some courses is restricted. Places are awarded through a two-quota system. Places in the first quota are distributed to applicants in accordance with marks obtained in the leaving examinations. On the basis of an individual assessment by the higher education institution, places in the second quota are awarded to students with the necessary entry qualifications who are considered likely to complete the course.

39 An independent institution, the Centre for Quality Assurance and Evaluation in Higher Education, has the following tasks:

- to initiate evaluation processes in higher education
- to develop appropriate methods of assessing higher education programmes
- to inspire and guide the institutions of higher education in those aspects of work concerned with evaluation and quality
- to draw together national and international experience on the evaluation of education.

The centre is charged with the task of evaluating all higher education programmes over a seven-year period. It also evaluates new programmes and programmes which give cause for concern.

College organisation and management

40 The vocational colleges specialise in commercial or technical training. They vary in size. The Hillerød Commercial College has approximately 1,800 students on full-time/sandwich courses, plus several thousand students taking part-time courses and retraining short courses. The college has 160 full-time and 50 part-time teachers, supported by 25 administrative staff. The college's budget is approximately £8.5 million. Roskilde Technical College has 1,600 full-time students and 250 staff of whom 200 are teachers.

41 Recent changes in government policy have set new priorities for colleges. These include:

- steering by targets and frameworks rather than by regulation
- an increased market orientation
- an emphasis on education programmes with better employment prospects
- a focus on quality and internationalisation
- greater efficiency; more students for less money.

42 Funding arrangements for colleges have been changed (see paragraphs 60-61) to encourage efficiency. College managers have also been given greater freedom to determine how they spend their money and are expected to negotiate with teachers on how the Ministry of Education's guidelines are to be interpreted at college level. A consequence of these various changes at Roskilde Technical College is an increase in average class size from 12 to 18. A further consequence is greater competition between colleges for students.

STUDENTS WITH LEARNING DIFFICULTIES AND/OR DISABILITIES

43 Provision for pupils attending compulsory schools who have learning difficulties and/or disabilities is organised by the counties. About 25 per cent of such pupils are integrated, with a range of support services, into school classes. Another 25 per cent attend special classes in the main school, whilst the remainder attend special schools run by the county.

44 About 15,000 young people attend some 200 private continuation schools, funded through government and municipal grants. These are residential schools attended by young people aged 14-18 who may have a learning difficulty and/or disability and may require support for social or emotional reasons. Some young people attend such schools up to the age of 21 years. The curriculum in these *efterskolen* is based on practical and creative subjects.

45 About 63 private production schools offer vocational education based on the production and sale of goods. Students follow one of seven programmes for five months.

46 At the post-compulsory level of education, young people with learning difficulties and/or disabilities may be integrated into the mainstream technical and commercial colleges or *gymnasia* with the help of technical and other support provided by the Ministry of Education. Assessment advice is also provided by ministry advisers. A new programme, which commenced in April 1994, is intended to enable Young people with severe learning difficulties to attend technical college for two years on a mixed programme of work experience and periods of study spent in the college.

47 Alternative support for young people with learning difficulties and/or disabilities is provided through the *kurator* system which provides ongoing support for young people and their families during the transition from school to further education, training or employment. This service coordinates and obtains services for young people, monitors and supports individual progress and acts as an advocate on their behalf when appropriate. It also provides training and materials for teachers.

COUNSELLING, GUIDANCE AND STUDENT SUPPORT

48 Denmark has a comprehensive counselling and guidance service provided by the labour market authority and the education service. The two services overlap but there is good collaboration between them. The education guidance service, organised by the compulsory school authorities, provides help in study techniques, and offers interviews and education, careers and personal guidance. It is available to school leavers in the final years of compulsory education. Each *folkeskole* class has a counsellor and class teacher. Class teachers remain with the same class group and also play an important role in guiding students. Continuity is provided by the same counsellor supporting a group of students for two years after completion of compulsory schooling. After the age of 18, students become the responsibility of the Ministry of Labour. Careers and personal guidance are provided also by counsellors within the vocational colleges. In the *folkeskole*, we saw final year students in a careers guidance workshop. They were working in groups studying video tapes and computer databases which provided information on possible career outlets. Those school-leavers not in Education are catered for by the youth guidance service also run by the school authorities. Guidance services for adults are provided by the labour market authority through the public vocational guidance service which offers interviews, careers information, job centres, etc.

49 The ministries of education and labour, employers and employee organisations all participate in the provision of guidance services. There is government financial support for 3.45 guidance hours per student per year in commercial colleges and 4.9 hours per student per year in

technical colleges. Guidance forms an integral part of the curriculum at both compulsory school and college. Key features of the guidance and counselling service include: specialist teams of counsellors who provide training and materials for school and college guidance teachers, work directly with young people, manage work experience programmes, and liaise with education and training providers especially about apprenticeship contracts; the provision of special services for students with learning difficulties and/or disabilities and for immigrants; the systematic follow-up of each young person up to the age of 21 years; and an increasing emphasis on guidance for adults. This comprehensive guidance and counselling service fosters the high participation levels of young people and adults in all aspects of education and training and provides a supportive back-up service for those young people who drop out of education at an early stage.

QUALITY AND STANDARDS

50 In Denmark, the main emphasis in quality assurance is at the input stage through the curricular framework, laid down by the Ministry of Education, through the detailed curriculum, determined by each school board, and through examinations and certification. There is less emphasis on quality control of the curriculum. For example, colleges do not normally have a designated quality manager. Externally accredited quality systems based on industrial models (exemplified in England by British Standard 5750) are not used. Questionnaires are widely used to obtain feedback from students.

51 The Ministry of Education has a small number of full-time inspectors who are involved mainly in policy formulation and administration. Any direct involvement in inspection is generally in response to complaints from individuals or to investigate anomalous performance indicators arising from the nationally collected statistics. Part-time inspectors, who are practising teachers, do some routine inspections in colleges but these are relatively infrequent. For example, the inspection of a course leading to a higher technical examination programme at one of the colleges visited involved visits from two senior practitioners from other colleges. Discussions were held with students and teachers, teaching schemes were examined and examination results analysed. The report was available to the public but not widely circulated.

52 Standards for vocational courses are set by the Council for Vocational Education and approved and enforced by central government. Vocational curricula are determined by the trades committees with equal representation from appropriate employee and employer organisations. The detailed work of writing the curricula is carried out by practising vocational teachers.

53 Student achievement is recorded on the national 13-point marking scale shown in appendix 5; grades above six are regarded as pass

grades. Course work, projects and national examinations all contribute to students' grades. Marking is done by the college teachers and there is moderation by teachers from other colleges. The average mark obtained is used by higher education institutions as a determinant of a student's capacity to benefit from a course of higher education. Assessment practices and methods vary little between vocational colleges and *gymnasia*, with both having a mixture of course-based assessment and external tests.

54 Students on sandwich courses are assessed at the end of each college period and the certification, which is passed to the employer, includes recommendations for aspects of performance which need to be improved during the work-based period. Similarly, during the work-based period, the employer assesses the students' competence and knowledge and provides a report on which the college is expected to act. The final stage in vocational qualifications is the 'journeyman' test, or the production of a 'masterpiece'. This is assessed by two trade union representatives of the employees' organisation and two employers from the appropriate trade committee.

TEACHERS AND THEIR TRAINING

55 College teachers are graduates from a teacher training college or university, skilled workers from an industrial or commercial background, or graduates who have been employed in industry or commerce. Those without teacher training must, during their first two years as a college teacher, undertake a course of training which consists of approximately 400 hours of education theory and 80 lessons of practical teaching experience. Teachers are paid on a 15-point salary scale. Many teachers spend all their working lives in a single institution.

56 The status of teachers at the various colleges is reflected in the respective pay scales. *Gymnasium* teachers and those teaching on the higher commercial courses are paid most. Those teaching the lower commercial courses are paid a little less but receive slightly higher rates than the *folkeskole* teachers. However, many colleges encourage their staff to teach across a range of courses and levels.

EMPLOYERS AND THE EDUCATION SERVICE

57 Denmark has a long history of successful collaboration between employers, employee organisations, the government and the education service in all aspects of vocational education and training. In spite of this, in the mid-1980s, it became apparent that the vocational education and training system was not coping with the rapid changes in technology. There was a shortage of workers with the new skills and a surplus of those with skills no longer in demand. One consequence was a substantial drop-out of students before the completion of their vocational education and training. In response to these deficiencies the government privatised the vocational schools, introduced a new funding

arrangement the *taximeter grant* system, reduced the numbers of vocational streams from 300 to 87, gave students the right to choose the college they attend and introduced the dual system of entry described in paragraphs 26 to 29.

58 Employers and employee organisations exert considerable influence on both the planning and development of vocational education and work in close collaboration with the Ministry of Education. This collaboration is undertaken at three levels. At the national policy level, the Council for Vocational Education advises on policy issues such as the aims, objectives and structure of vocational education and training, the approval of new courses and course entry requirements. Also at the national level, trade committees have been established for each of the 87 vocational streams. These committees advise on the duration, structure, content and assessment arrangements for vocational education and training courses in their trade area. At the local level, education committees established by the college, advise the college on the entire education programme of the college and ensure that college courses meet local employers' interests and needs.

59 In spite of all this consensus and collaboration, there are insufficient industrial placements to meet student demand for places on courses such as those described in paragraphs 26 to 29. A generous reimbursement system, which provides 90 per cent of the wages of an apprentice during college training periods and 80 per cent of the travelling expenses of those with a commuting distance to college exceeding 20 km, has failed to elicit the necessary response from employers. Reimbursement is drawn from the levy system to which all employers contribute £150 per employee per year.

FUNDING

60 The newly-introduced *taximeter* funding system for vocational education and training institutions has two funding elements. One relates to expenses incurred in teaching and embraces the salaries of teachers and support staff, teaching materials and teaching equipment. The second comprises the expenses relating to rent and mortgage payments, the operation of buildings, management and administration and other miscellaneous expenses. The grants are not earmarked and colleges are free to allocate resources as they think fit.

61 All educational activities undertaken by the college are placed in one of six *taximeter* groups which attract funding per full-time equivalent student of between £2,000 and £5,700 per year. A full-time equivalent student is defined as a student who attends college full-time for 40 weeks. Thus, one full-time equivalent student might be 40 students who attend college for one week each. It is proposed to amalgamate the two funding elements into a single unit but to retain the six *taximeter* groups.

62 Both ministry officials and college principals recognise that the testing time for the new funding regime will be during the next few years when the demographic downturn in the 16-20 year old age group will cause intense competition for students. In a society in which over 90 per cent of the 16-20 year old age group are already participating in full-time education and half of the adult population is in some form of adult education, the scope for further increases in enrolment is limited.

STUDENT GRANTS AND LOANS

63 Denmark has a student grant and loan scheme administered by an agency funded through the Ministry of Education. Grants are available to students in both upper secondary and higher education institutions. The agency receives support from universities and colleges in the administration of the grant and loan scheme.

64 In 1992-93, 115,000 students received £360 million in grants and 70,000 took out study loans amounting to £99 million. State education support is granted to Danish citizens, aged 18 and over, who are enrolled on a course of full-time study of a minimum duration of three months. The support is means tested and is normally reduced if the students income is over £4,000 per year.

65 Students living with their parents, and students under 20 years of age enrolled in their first youth education programme, can be awarded a minimum grant of £190 per month. Other students living on their own qualify for a maximum grant of £330 per month. Both categories of student can, in addition, obtain a state loan of £150 per month. State loans must begin to be repaid one year after the completion of their studies. The repayment period must not exceed 15 years. During the period of study, interest is charged at 4 per cent and on completion at the minimum lending rate of the Danish central bank.

66 A voucher system for student maintenance operates for higher education students and for programmes undertaken by those who have completed a youth education programme. Vouchers may be cashed one month at a time. In principle, students receive support for one study programme only. However, each student has a pool of up to 12 entry vouchers which are at his or her disposal to cover the maintenance costs associated with changing a course of study, resitting an examination or achieving the entry qualifications for a course of study. The voucher system allows students to decide for themselves when and how they use their maintenance support.

BIBLIOGRAPHY

- 1 *Education in Denmark: The Education System*, Danish Ministry of Education and Research, 1992.
- 2 *OECD Economic Surveys 1992-93*, Denmark OECD, 1993.
- 3 *Vocational Education and Training in Denmark*, Danish Ministry of Education and the Danish Ministry of Labour, 1992.
- 4 *Fact sheets on Education in Denmark*, Danish Ministry of Education, 1992.

APPENDIX 1

INSTITUTIONS AND ORGANISATIONS VISITED

Folkeskole Havremarken, Copenhagen

Hillerod Business College

Roskilde Technical College

School and Youth Guidance Services, Copenhagen

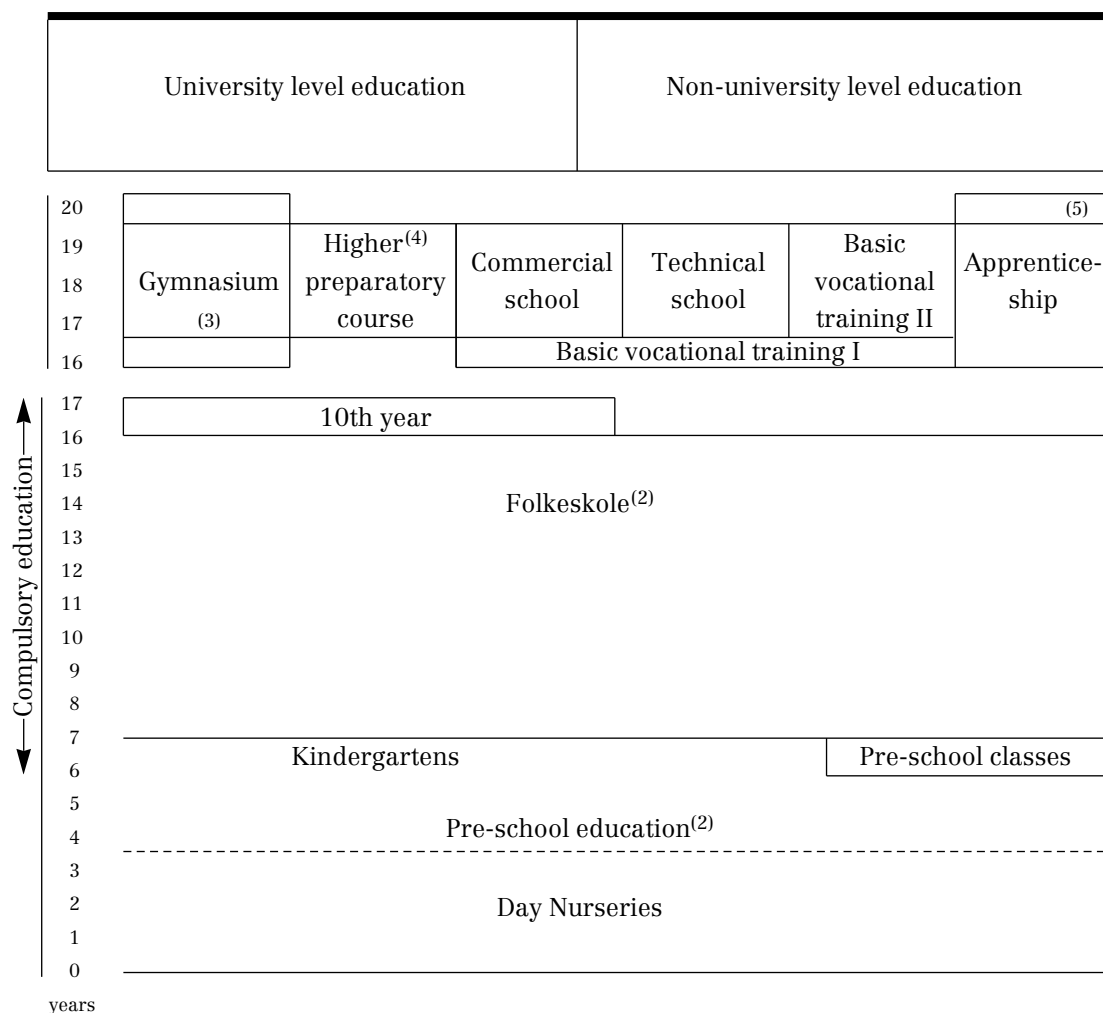
Ministry of Education, Department of Vocational Education and Training

Confederation of Danish Industries

National Union of Metalworkers.

APPENDIX 2

DIAGRAMMATIC REPRESENTATION OF THE DANISH EDUCATION SYSTEM



1 In pre-school education there are several institutions catering consecutively or alternatively for the 0 to 6/7 year age range.

2 The *folkeskole* comprises an optional pre-school class, nine years of full-time compulsory education and a supplementary optional tenth year. It provides general education at primary and lower secondary levels; the Danish education system does not differentiate between primary and lower secondary education.

3 The *gymnasium* provides a three-year course of general education at upper secondary level, after the ninth or tenth year of the *folkeskole*, with the final examination qualifying for university entrance.

4 The Higher Preparatory Course (HF) is a two-year general course, after the tenth year of the *folkeskole*, with the final examination qualifying for further and higher education.

5 Apprenticeship training lasts between three and four years depending on the sector.

APPENDIX 3

TYPICAL GYMNASIA CURRICULA

Languages line: number of lessons per week per subject

3rd year	PE and sport 2	Danish 4	History 3	RE 3	Visual arts 2	Classical studies 3	Option 4 or 5	Option 5	Option 5	
2nd year	PE and sport 2	Danish 3	History 3	Foreign language (cont) 4	Geography 3	Foreign language (begin) 4	English 4	Natural science 4	Option 4 or 5	
1st year	PE and sport 2	Danish 3	History 3	Foreign language (cont) 4	Biology 3	Music 3	Foreign language (begin) 4	English 4	Natural science 3	Latin 3

Languages: English and Latin are obligatory. One other language is continued from basic school (French or German) and a third modern language is studied at beginner's level (French, German, Italian, Spanish, or Russian) with the same syllabus as the mathematics line.

Same syllabus in both lines

Different syllabuses in the two lines

INTERMEDIATE LEVEL OPTIONS

4 Weekly lessons in either 2nd or 3 year

Both lines:

Latin*	Social studies
Geography	Biology
Chemistry*	Computer science
Technical studies	Business economics
Philosophy	Drama
Music	Physical education and sport
Visual arts and TV studies	Design

Only languages line:

Mathematics	Physics
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* Different syllabuses in the two lines

Mathematics line: number of lessons per week per subject

3rd year	PE and sport 2	Danish 4	History 3	RE 3	Visual arts 2	Classical studies 3	Option 4 or 5	Option 5	Option 5	
2nd year	PE and sport 2	Danish 3	History 3	2nd foreign language 4	Geography 3	English 4	Maths 5	Physics 3	Option 4 or 5	
1st year	PE and sport 2	Danish 3	History 3	2nd foreign language 4	Biology 3	Music 3	English 3	Maths 5	Physics 3	Chem 3

Languages: English is obligatory. The foreign language is either continued from basic school (French or German) or French, German, Italian, Spanish or Russian for beginners.

■ Same syllabus in both lines

□ Different syllabuses in the two lines

High level options

Weekly lessons

	<i>2nd year</i>	<i>3rd year</i>
Both lines:		
Social studies	5	5
Music	5	5*
English		5
German		5
French		5
Spanish		5
Russian		5
Italian		5
Only language line:		
Latin	5	5**
Greek	5	8
Only mathematics line:		
Mathematics		5
Physics		5
Chemistry	4	5
Biology	5	5

* Different syllabuses in the two lines

** Includes classical studies

APPENDIX 4

A TYPICAL VOCATIONAL EDUCATION AND TRAINING COURSE STRUCTURE

A typical vocational course is that for mechanical engineers in which the student/trainee undergoes off-the-job (at college) and on-the-job (with an employer) education and training over a four-year period. Periods at college are interspersed with training periods spent with the employer as follows:

<i>Period</i>	<i>Duration (weeks)</i>	
	<i>College</i>	<i>Employer</i>
1	20	20
2	20	–
3	–	25
4	10	–
5	–	25
6	5	–
7	–	30
8	5	–
9	10	–
10	–	30
11	10	–
12	5	–
13	–	*
Total	85	130+

* Until end of course

APPENDIX 5

ASSESSMENT: THE 13-POINT MARKING SYSTEM

Use of the marking system in primary and secondary education.

Marks given according to the 13-point marking system are divided into three main groups: excellent, average and hesitant (0 lies below these and is very rarely given).

- 13 is given for the exceptionally independent and excellent performance
- 11 is given for the independent and excellent performance
- 10 is given for the excellent but not particularly independent performance
- 9 is given for the good performance, a little above average
- 8 is given for the average performance
- 7 is given for the mediocre performance, slightly below average
- 6 is given for the somewhat hesitant but more or less satisfactory performance
- 5 is given for the hesitant and not satisfactory performance
- 3 is given for the very hesitant, very inadequate, and unsatisfactory performance
- 0 is given for the completely unacceptable performance.

The Leaving Examination of the *Folkeskole* (*Folkeskolens afgangsprøve* and *Folkeskolens udvidede afgangsprøve*) are taken on a single-subject basis and are voluntary for the individual pupil. There is no pass mark.

In order to pass the Upper Secondary School Leaving Examination (*Studentereksamen*), the student must have a minimum average of 6.0 both in the year's work and in the examination.

The 13-point marking system is intended to ensure uniformity in the assessment of achievement at the institution where it is in use. Generally, marks given in the *folkeskole* and second-cycle education represent a pupil's achievement seen in relation to that of the peer group.

Use of the marking system in higher education

13	
11	very good
10	
9	
8	good
7	
6	
5	
3	less satisfactory
0	

At institutions of higher education, either an average mark of 6 or, in some cases, a mark of at least 6 in each subject is required for passing. Marks given at these institutions represent a student's achievement in relation to the standards set by the institution concerned.

Further information about the requirements of any particular institution may be obtained from the institution itself.
