Unfinished Business
Full-time Educational Courses for 16-19 Year Olds
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A Study by the Audit Commission and HMI

LONDON: HMSO
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Preface

This report shows a way of evaluating the outcomes and costs of educational courses for young people between the ages of 16 and 19. It includes methods for analysing what lies behind variations in outcomes and costs – methods with potential applications in other sectors of education. The report also presents some important conclusions about the effectiveness and costs of this sector of education. The findings are products of a joint study by the Audit Commission and HMI of aspects of full-time education provision for young people between the ages of 16 and 19, the first years after completion of compulsory schooling. In September 1992 the former HM Inspectorates of Schools in England and Wales were incorporated into the new non-ministerial Offices of Her Majesty's Chief Inspectors of Schools and, in England, into the Further Education Inspectorate Branch of the Department for Education. Since then the Inspectorate's participation in the study has been transferred to the Office for Standards in Education (OFSTED, the Office of Her Majesty's Chief Inspector of Schools in England).

The Audit Commission and HM inspectors are both involved in the monitoring of education's effectiveness and efficiency, but have different perspectives. In April 1991, the Commission and HMI launched a joint study of 16-19 education aiming to capitalise on both perspectives. It excluded consideration of part-time education, a much smaller sector of 16-19 provision than full-time education, to keep the scope of the study within bounds.

The study has involved detailed fieldwork in 42 schools and colleges and the local education authorities (LEAs) for the areas in which they were situated in England and Wales, and visits to schools, colleges and education offices in one Scottish LEA area. Among the schools visited were two independent schools and one grant-maintained school. In particular, data were gathered on:

- qualification results of full-time students on a range of courses – GCSE, A-level/AS and vocational;
- the costs of courses, including teaching and non-teaching costs;
- the guidance provided about courses.

Alongside the data from fieldwork, the study has taken account of HMI's published evaluations of various aspects of provision and HMI judgments about students' work in some of the institutions from which data were gathered. The study has also made use of specially commissioned work by Professor John Gray and Mr David Jesson of Sheffield University's Division of Education and by Professor Carol Fitz-Gibbon of the School of Education of the University of Newcastle upon Tyne.

The study team comprised James Kennedy of the Audit Commission's Local Government Studies Directorate, HMIs Martin Foster and Barrie O'Sullivan, both now with the Further Education Inspectorate Branch of the Department for Education, and Carol Mounfield, seconded to the study from the District Audit Service of the Audit Commission.
A group drawn from those professionally involved in 16-19 education provided valuable advice to the study team throughout the study. The members of the advisory group acted in their personal capacities. They were:

Mr M Clegg, Principal of Preston College;

Mr H G L Clement, Director of the Welsh Schools Partnership, Department of Education, University of Wales, Swansea, former headteacher of Coedcae Comprehensive School, Llanelli, Dyfed;

Mrs M Craft, Principal of Long Road Sixth Form College, Cambridge;

Mr C Farmer, Chief Education Officer, Coventry City Council;

Mrs O Grant, Chief Executive, Tyneside Training and Enterprise Council;

Dr W G Gregg, Head of Quality Management and Continuing Education, Somerset County Council;

Ms C M Heathcote, Head of Careers Education and Guidance, London Borough of Southwark;

Mr P G Hudson, Headteacher, Southgate School, London Borough of Enfield;

Mr R Hughes, former senior adviser, Cheshire County Council;

Mr D T Kingan, Director, Stoke-on-Trent College.

The Commission and OFSTED wish to put on record their gratitude to the members of the advisory group and to all the students, teachers and LEA officers who helped the study team.
Summary

Every year some 600,000 young people reach the age of 16, when they are entitled to leave school. About 35% remain at school while 32% transfer to a further education college or a sixth form college. Public expenditure on full-time education for 16 to 19 year olds is about £2 billion a year. Educating a student on an A-level course costs about £3000 a year. Costs on vocational courses are similar.

There are many changes affecting the provision of education for 16 to 19 year olds, in particular the development of a regulated market as institutions are encouraged to compete for students. If students are to exercise the choice potentially available to them, they need access to comprehensive information about options, including comparative information on the effectiveness of institutions.

Participation rates at 16 and 17 are now rising towards those of other industrialised countries and the Government intends that post-16 participation in education should continue to grow. This adds an extra impetus to the ever-important need to ensure that costs are not unnecessarily high.

The study has revealed shortcomings in the collection and recording of information, particularly on completion rates, on students' qualifications before enrolling, on non-completion and sometimes on students' final results too.

Currently published performance data have a number of limitations. For example, they fail to take account of the ability of students on intake to courses, and they do not include information on students who enrol on courses and leave before taking their examinations.

On A-level courses, students' achievements are correlated with their prior GCSE achievements. The A-level performance of a school, a college, a department or an individual teacher should therefore be reviewed on the basis of the progress made by students from GCSE to A-level, in other words by the 'value added' by their courses. A method for expressing A-level and GCSE results as scores and computing the value added has been developed and applied during this study, drawing on the experience from methods already adopted by some schools and colleges. All that is required before it can be applied nationally is the annual calibration of formulae relating A-level results to prior GCSE results — a task which could be commissioned by the Department for Education (DFE) and the Welsh Office.

Value-added approaches are also eminently suited to GCSE resit courses but their application to vocational courses appears to be hampered by the absence of an identifiable link between prior qualifications and subsequent achievement on vocational courses.

The analysis has shown up courses of all types with disappointingly low success rates — measured in terms of the proportion of enrolled students who achieve the qualifications they set out to gain. Typically, between 30% and 40% of students starting on a course do not succeed, and for many courses the proportion is much higher.
Value-added evaluations show that, taking all subjects together, the A-level achievements of about half of the schools and colleges visited are closely bunched, but that there are significant differences between the best and the worst. Students in the most successful 10% of schools and colleges achieve six UCCA points on average more than students with the same GCSE results in the least successful 10% of schools and colleges – a difference equivalent to a grade higher in each of three A-levels.

The analyses found some small but statistically significant differences between the effectiveness of A-level courses in different types of institution. No link was found between the costs of vocational and A-level courses and the courses’ success rates defined in terms of qualification results. In the case of A-level courses, no link was found between the costs of teaching particular subjects and the value added by courses in those subjects. Whilst these comparisons must be treated with caution because of limitations in the data available, they are consistent with other observations and expose a serious concern about the variations in costs.

Costs per student for comparable types of course vary widely. For A-level courses examined in the fieldwork, annual revenue costs varied from £1000 to £7000, while the costs of vocational courses of two particular types varied by about 2:1.

The large variation in costs is mainly due to variation in the number of teaching hours per student, which is itself dependent on the size of teaching groups and on the number of hours given to teaching the subjects or modules of the course. If teaching were organised so that there were no groups with fewer than 10 students, costs of certain courses in particular institutions would be reduced by over half. Some of the variation in number of hours of teaching is due to variation in the content of comparable courses.

Non-completion of courses is a source of significant waste in 16-19 education. Non-completion rates average about 13% for A-level courses and 18% for vocational courses, but on some individual courses in particular institutions, non-completion reaches as high as 80%. Similar proportions of enrolled students complete courses but fail to achieve their main intended qualifications. The cost of the courses taken by students who do not achieve their intended qualification aims is about £500 million a year – as well as substantial amounts of students’ time. It would be impractical to eradicate failure and non-completion, but losses on this scale justify increased efforts to persuade more students to complete their courses and to match students and courses more appropriately. Non-completion rates show some relationship with prior GCSE results; for A-level courses the evidence suggests that students with modest GCSE results should be enrolled only after being made aware of their low chances of success.

The study’s key recommendations are:
— schools and colleges should record data on students’ qualifications systematically;
— institutions should track the rates of successful completion, unsuccessful completion and non-completion for all courses and the value added for students on A-level and GCSE courses;
— this tracking information should be used both to inform the admissions process and to inform reviews of the teaching and organisation of courses;
— the DFE and Welsh Office should modify the requirements for publication of information on pupils' and students' results to include non-completion rates for all courses and institution-by-institution statistics of value added on A-level and GCSE resit courses;

— the costs of courses and the resource decisions which determine costs should be monitored and, where necessary, acted on;

— the inspecting bodies (FEFCs and OHMCIs) should ensure that information in published reports on the quality of comparable courses in schools and colleges is presented compatibly;

— funding structures should not encourage indiscriminate student recruitment to courses;

— the new framework for the careers service should preserve and enhance its rôle as champion of students.

Providers of 16-19 education are assuming more and more of the features of business units, but there is much unfinished business to attend to if they are to become fully effective.
Introduction

1. Every year some 600,000 young people reach the age of 16, when they are entitled to leave school. A number of possibilities are open to them at this point (Box A), although not all young people have all of them available. For example, for many students post-16 education necessarily involves transfer to another institution because over 40% of all secondary schools have no sixth forms and most do not at present offer vocational courses. Some options may be oversubscribed. Employment for 16-year-olds is increasingly scarce, the demand for Youth Training places is greater than the supply in many areas and a number of full-time courses have to restrict their numbers.

Box A
MAIN FIRST DESTINATIONS FOR A 16-YEAR-OLD

- continued full-time study in the school attended up to age 16
- transfer to another school to continue full-time school study
- transfer to a sixth form college to continue full-time study
- transfer to a further education college for full-time study
- employment, which may include part-time or full-time off-the-job education or training (possibly subsidised through the Youth Training (YT) scheme)
- a training place under YT under which the young person does not have full employed status.

2. The importance of 16-19 education can be seen from a number of angles. For the young people themselves it is the transition from general, compulsory education into the adult world, or at least it is the first stage of that transition. For employers, 16-19 education plays a major part in the preparation of young people for their future roles as employees. That preparation is a key determinant of national prosperity.

3. Low levels of skill in the British workforce are widely seen as a major impediment to improved national economic performance and high levels of skill are seen as correspondingly important to other countries' success. The CBI and many others have made the point strongly and urged action to remedy the problems.

4. Commentators have different diagnoses but have at various times identified several interlocking factors, for example:
- individuals are reluctant to invest their energies and time in non-compulsory education and training;

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— some employers are shy of innovation and adaptation, activities which make demands on employees’ skills;

— some school and college courses leave students without appropriate levels of skill and understanding.

5. It is generally recognised that improvement can come only from action to tackle all the interlocking factors – the contribution of the education system cannot be productive on its own. For example, employers need to make use of the talents employees have developed, and the financing of companies needs to support investment in innovation which will make use of higher levels of skill.

6. Current initiatives include:
— development of training credits, designed to allow individuals to take responsibility for their own training;

— the establishment of the ‘Investor in People’ standard to encourage employers to make investment in people an integral part of their strategy;

— the reform of vocational qualifications within the structures maintained by the National Council for Vocational Qualifications.

7. And specific national targets have been set for education and training:
— 80% of young people should attain National Vocational Qualification (NVQ)\(^1\) level 2 or its equivalent by 1997;

— training and education to NVQ level 3 (or equivalent) to be available to all young people who can benefit;

— 50% of young people to reach NVQ level 3 (or equivalent) by 2000; less than one third of young people attain this target at the moment.

These targets are supported by the Government, the CBI, the TUC and by major education and training interests.

PUBLIC FUNDING OF PROVISION FOR 16-19 YEAR OLDS

8. A large and complex network of publicly-funded and subsidised agencies support the range of provision for 16-19 year olds. Most maintained schools, which currently have the largest group of 16-19 year olds, are at present funded by local education authorities (LEAs). A minority are grant-maintained (GM), which means that their funds come directly from Central Government.

Central Government then recovers a sum matching each GM school’s funds from the LEA which maintained it before it became GM. In the White Paper of July 1992, ‘Choice and Diversity: a new framework for schools’, the Government restated its wish to see the proportion of GM schools increase and announced proposals to establish a Funding Agency for Schools (FAS), proposals which form part of the current Education Bill. The FAS is intended to be the executive agency of Government for funding and overseeing the GM sector and in particular is to be responsible

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1 NVQs are qualifications established within a framework which includes broad equivalences between different vocational areas. NVQ level 2 is broadly equivalent to GCSE, and level 3 to two A-levels.
for the funding of GM schools. Central Government pays a proportion of the fees for particular pupils who attend independent schools which are members of the Assisted Places Scheme (303 English and Welsh schools participate in the scheme); many of these schools have sixth forms. In the 15 City Technology Colleges, all of which will eventually have sixth forms, the majority of costs are met by Central Government, with the balance paid by industrial and other benefactors.

9. Until April 1993 FE colleges and sixth form colleges will continue to be maintained by LEAs, although FE colleges also receive funding from other sources, much of it originating from the Department of Employment and the Welsh Office. From April 1993 both types of college are to be run by free-standing corporations and LEAs' funding responsibilities are to be assumed by the Further Education Funding Councils (FEFCs, one for England and one for Wales), which will receive their funds from Central Government.

10. Youth Training is a scheme which supports work training for young people and provides them with the opportunity to work towards recognised vocational qualifications, in many cases by participation in part-time education. Employers and other agents of the scheme receive a subsidy for managing and providing this training. The scheme is overseen and funded by Training and Enterprise Councils (TECs), which receive the bulk of their funds from the Department of Employment and the Welsh Office.

11. The public resources involved in 16-19 education and training are considerable (Table 1).

<table>
<thead>
<tr>
<th>Type of Provision</th>
<th>Expenditure 1991/92 (£million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth Training</td>
<td>750</td>
</tr>
<tr>
<td>Maintained School Sixth Forms</td>
<td>1,011</td>
</tr>
<tr>
<td>Full-time 16-19 Further Education</td>
<td>890</td>
</tr>
<tr>
<td>City Technology College Sixth Forms</td>
<td>7</td>
</tr>
<tr>
<td>Assisted Places</td>
<td>20</td>
</tr>
<tr>
<td>Careers Service Guidance</td>
<td>60</td>
</tr>
</tbody>
</table>

Note: Sixth form colleges and grant-maintained school sixth forms are included with maintained school sixth forms.

Source: Audit Commission/HMI estimates based on Government Expenditure Plans.

THE NEED FOR MONITORING OF 16-19 PROVISION

12. Recent changes in legislation are generating pressures which are leading to the development of a regulated market in publicly maintained education (Exhibit 1, overleaf). Formula funding means that student numbers are the main factor determining the size of schools' and further education colleges' budgets. This encourages schools and colleges to compete with one another for students.

13. At the same time, open enrolment gives students and parents greater freedom of choice. As they exercise that freedom, students and parents will be keen to secure as much relevant information about schools' and colleges' performance as they can.
There are several pressures on schools and colleges.

14. High-quality information on how well educational institutions are functioning is thus needed to support young people in their choice of where to study, as well as for the purposes which monitoring fulfills for any public service:

— to contribute to the accountability of education providers (schools, colleges, staff within them);

— to assist education providers’ internal management processes.

15. In the last few years, there has been increasing emphasis on the public accountability of educational institutions and in particular on the publication of information about them. All the reports of Her Majesty’s Inspectorate of Schools (HMI) were published from 1983. These reports give prominence to HMI’s judgments of the quality of students’ learning and the standards which students are seen to achieve. Schools and sixth form colleges have been required to publish information on their pupils’ examination attainments since the 1980 Education Act. The requirements have recently been updated and extended and, in particular, summary information on examination results in all the schools in each local education authority area now has to be published. The Government intends to introduce similar requirements in relation to further education colleges and has invited colleges to publish their results for 1991/92.

16. Published league tables have been criticised for being based on raw examination results and not taking account of the nature of the intake of pupils into the school. There have been calls for more sensitive measures of schools’ and colleges’ performance and in particular for the use of a ‘value-added’ approach to examination results. Amongst these calls, the Audit Commis-
sion’s Working Paper Two Bs or Not…? Schools’ and Colleges’ A-level Performance in November 1991 was favourably received by all the main parties in the House of Commons.

17. The Government’s intention for participation to grow adds an extra impetus to the ever-important need to ensure that costs are not unnecessarily high. Additionally, institutions themselves are keen to monitor costs, since funding mechanisms are largely based on student numbers, and institutions will increasingly be under pressure to deliver good results for a fixed cost.

18. The task is made more difficult because of deficiencies in the data available to support the monitoring of 16-19 education at operational level, deficiencies which impair the scope of monitoring. Under any circumstances, thorough monitoring is needed for a service which makes use of resources on the scale that 16-19 education does. At a time of fundamental change, it is vital.
1. Education Provision for 16-19 Year Olds and its Regulation

19. Although full-time education is not compulsory after the age of 16, most young people now pursue full-time education beyond that age. Up to the Second World War and for some time afterwards, the normal career path for school leavers was to seek employment, with or without structured and recognised training. Staying on in full-time education was confined to a minority who remained in the schools where they had studied before reaching statutory school leaving age. That form of full-time education is still with us, and has grown, but it has now been joined by a number of others. Between them, options starting with full-time education have come to dominate (Exhibit 2).

Exhibit 2
POST-COMPULSORY PROGRESSION SINCE THE WAR
Options starting with full-time education have come to dominate.

20. Many young people cross from one of the progression paths to another, in some cases more than once, but the underlying message holds: paths which start with full-time education have proliferated and become the norm.

21. Just as the range of schools and colleges is diverse, so too is the range of courses. Courses directed at A-level examinations continue for the moment to be the largest single group but there
is a huge range of vocational courses available. Indeed, one of the current problems is the large number of disparate vocational qualifications and courses. This chapter describes the main types of educational institution, the courses provided and the framework of external regulation of the post-16 education system.

SCHOOLS AND COLLEGES FOR 16-19 YEAR OLDS

22. Full-time 16-19 education takes place in a variety of institutions (Exhibit 3).

Exhibit 3
PROPORTIONS OF FULL-TIME STUDENTS IN DIFFERENT TYPES OF INSTITUTION IN 1991/92
At age 16, most students are in schools...

...while at age 17, more students are in further education or sixth form colleges.

Source: DFE Statistical Bulletin 14/92. Statistics relate to England only.

23. Maintained secondary schools provide education for pupils in the later years of compulsory schooling. Some secondary schools have 16-19 students too but over 40% of them do not. The total number of full-time 16-19 students studying in maintained secondary schools is greater than in any other type of educational institution.

24. Most 16-19 students in secondary schools are studying on academic courses. Relatively few secondary schools offer vocational courses, although since Autumn 1991 vocational provision in secondary schools has been increasing. Secondary schools are involved in the development of new vocationally-oriented qualifications which are now being developed by NCVQ and the awarding bodies.

25. At present sixth form colleges are maintained secondary schools characterised by having only post-compulsory age students. They generally have enough post-16 students to permit them to offer a wide range of academic subjects. After they are vested in their new corporations in April
1993, sixth form colleges will be able to extend the range of courses which they offer and to recruit adult students.

26. **Further education colleges** (FE colleges) offer a wide range of vocational and academic courses, both full-time and part-time, to students of all ages from 16 upwards. The majority of vocational courses are provided by FE colleges but the range in each college varies – a few FE colleges are highly specialised. Of particular relevance to the 16-19 phase is the variation in practice regarding A-level teaching. Most FE colleges offer A-level courses but in some colleges only to adults or to part-time students. Some FE colleges are the sole maintained providers of post-16 education for at least part of their neighbourhoods: such colleges are known as tertiary colleges.

27. **Independent schools** are principally maintained out of fees paid by pupils’ parents. For 28,000 pupils in independent schools, fees are subsidised from public funds. The overwhelming majority of independent secondary schools make provision for 16-19 year olds, mostly on A-level courses. Current structural changes have little direct effect on the position of independent schools.

28. **City Technology Colleges** have the same status in law as independent schools but their funding is mainly from public funds and partly from private benefactors. All 15 will eventually provide full-time education for 16-19 year olds.

29. A common thread running through many of the current changes in the education system is the intensification of competition between institutions. Partly this is driven by the lifting of restrictions on types of courses in particular institutions. Equally important are the elements in institutions’ funding determined by the number of students whom they enrol. The Government is keen that funding arrangements for FE corporations should include incentives in addition to the incentive to recruit additional students; the Secretaries of State for Education and for Wales have asked the FEFCs to ensure that funding should maintain and enhance quality by means of a relationship between funding and the assessed quality of provision.

**PLANNING OF OVERALL PROVISION**

30. Much of the planning of post-16 provision lies with individual institutions and their planning role is set to grow. But overall planning is needed to decide major changes such as the establishment and closure of whole institutions and to oversee the deployment of funds between institutions. At present, the major planning responsibility rests with local education authorities (LEAs), who have a responsibility in law for ensuring that there is appropriate provision for their areas. Training and Enterprise Councils (TECs) also influence provision. From April 1993 the main overall responsibility is to pass to the FEFCs, along with the responsibility for funding FE and sixth form colleges. In exercising this function FEFCs will have to co-ordinate their activity with LEAs and the proposed FAS because of the significant 16-19 provision in their sectors.

**WHAT 16-19 YEAR OLDS ARE STUDYING**

31. The courses 16-19 year old students follow are diverse and involve studies directed towards a wide range of qualifications. The word ‘course’ is here used to mean the complete programme of study followed by a student. A course may involve study for one or more
qualifications and study unconnected with any qualification. For full-time 16-19 year olds, courses are nearly always intended to last one or two years.

32. A-levels are qualifications achieved by success in examinations which are entered on a subject-by-subject basis. One important purpose of the qualifications is to indicate students' preparedness for participation in higher education. Setting and marking of the examinations are undertaken by the GCE examination boards. Advanced Supplementary (AS) examinations are similar to A-levels, both in structure and in degree of difficulty, but the AS syllabus is designed to cover half as much material as the A-level syllabus. AS examinations are usually taken in conjunction with A-levels. In 1990, 164,000 students entered for A-level examinations but only 23,000 entered for AS examinations (both figures include adult candidates as well as 16-19 year olds). Over 45 AS syllabuses are now available and a few individual institutions offer up to around 30, though they are less common in small schools. They are intended to broaden courses beyond a package of loosely-related subjects. AS examination results are recognised in higher education as contributing to a student's A-level attainment.

33. An A-level course is negotiated individually for each student and typically involves the student in entry for three A-level subject examinations after two years of study, although many other types of course are possible involving study towards A-level examinations. Many full-time students attempt two or four A-level subjects. Study for AS examinations is often combined with study for two or three A-levels. Study towards one or more A-level examinations is combined with study towards many other types of qualification including vocational qualifications and General Certificate of Secondary Education (GCSE) subjects.

34. Examination boards do not lay down any required prior qualifications for students embarking on A-level studies, but most institutions expect students to have reached a reasonable standard in GCSE. The most demanding institutions expect students to have achieved four or five grades between A and C, with a grade B or better in any subject to be taken at A-level. There are sometimes differences between subjects, such as the expectation by some teachers of at least grade B in GCSE French before beginning to study for A-level French against acceptance of grade C in mathematics before starting study for A-level mathematics.

35. The main function of the GCSE is to certificate achievement at the end of the compulsory years of schooling. Nevertheless, many students enter for subjects of the GCSE during a post-16 course, hoping to gain a sufficient base for A-level or other courses. Some students who take GCSEs post-16 take them as the main objective of their course; others take just one or two subjects as a subsidiary aspect of their studies. In some schools and sixth form colleges, the availability of vocational courses is increasingly providing an alternative to A-level and GCSE study.

36. The vocational qualifications for which the largest numbers of full-time 16-19 students study are those of the Business and Technology Education Council (BTEC). About 9% of young people aged 16 and 17 are studying for BTEC qualifications, mostly full-time. BTEC influences and approves the design of the courses on which students study for BTEC qualifications, which

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1 This information about BTEC and similar information in paragraph 38 about RSA and C&G are taken from the Department of Education and Science leaflet: 'An Introduction to Vocational Qualifications', March 1992.
are mainly provided in FE colleges. Each BTEC diploma is designed to occupy full-time students for the whole of a course. The assessment of students' achievements on the courses is carried out by those responsible for delivering the course. Moderators appointed by BTEC review these assessments, as well as other key aspects of the courses. Full-time 16-19 students study either for the First Diploma or for the National Diploma. The First Diploma course lasts one year, and BTEC lays down no prior entrance requirements. For the two-year National Diploma BTEC specifies that entrants should normally have achieved grade C or higher in four or more GCSE subjects or have achieved a good standard in a BTEC First Diploma. There is some latitude for individual colleges to depart from BTEC's stated entry requirements.

37. BTEC First Diplomas in different vocational fields are intended to be of comparable standard to one another and to be of about the same standard as four grade Cs in the GCSE. National Diplomas in different areas are similarly held to be of equivalent standard to each other and are viewed as being at or above the standard of two A-levels. Increasingly the BTEC National Diploma is being recognised as fulfilling the entrance requirements for Higher Education courses. In six courses the study team found 35 out of 122 BTEC National Diploma students seeking to progress to Higher Education. BTEC qualifications equip students with a wide range of skills, not merely those directly relevant to specific jobs.

38. The second largest group of vocational qualifications are those awarded by the City and Guilds of London Institute (C&G). About 11% of 16-19 year olds are studying for these qualifications; the majority of these students study part-time. The third major vocational awarding body is the RSA Examinations Board, which started as part of the Royal Society of Arts but has been a separate company since 1987. About 1% of young people aged 16 and 17 currently study for RSA awards as a main course, mostly part-time.

39. Unlike BTEC, C&G and the RSA Examinations Board do not routinely intervene in the overall design of courses and do not design qualifications to fit into particular course structures. Colleges put together a number of C&G or RSA qualifications to make up a course, and often incorporate qualifications of more than one awarding body in the same course. Assessment of students' attainments for these awards is carried out in a variety of ways, different forms of assessment being used for different elements of the same qualification. Where multiple choice tests and other written papers are used, some are externally set and externally marked; others are set and marked by the centre where the paper is taken (usually an FE college). Practical tests, coursework and project work are all assessed internally, subject to external moderation or verification. Generally, C&G and RSA qualifications are more focused on development of specific work-related skills than are BTEC qualifications.

40. Many other bodies award qualifications for which 16-19 year olds study, but these other bodies cover narrower ranges of vocational areas than do BTEC, C&G and the RSA Examinations Board. Several specialised vocational awarding bodies are leaders in the areas in which they specialise. Most such bodies are small.

41. Different vocational courses and qualifications are designed to occupy different positions on the scale between specific training and general education. The structure of vocational qualifications is being redesigned to ensure that qualifications are available which equip people for work. A system of National Vocational Qualifications (NVQs) is being established in all
sectors of employment. The Government has charged the National Council for Vocational Qualifications (NCVQ) with co-ordinating this initiative. NVQs have a number of distinctive features, including a framework of broad equivalences of the standards of qualifications in different vocational areas. Every NVQ is classified as being of a particular level, with the levels numbered from one (semi-skilled) to five (middle management or professional). A number of qualifications from a range of awarding bodies are currently accredited as National Vocational Qualifications, which entails particular conditions for candidates’ assessment. For each of the constituent elements of the qualification the candidate’s competence is assessed in an actual or simulated workplace by a person who has been accredited as an assessor.

42. NVQs are qualifications about occupational and professional competence, and are aimed at raising standards of people’s work competence. Inevitably this raises obstacles to their use in full-time education. There is a limit to the capacity of educational institutions to comply with the workplace orientation required for NVQs. More fundamentally, there are many young people for whom vocational preparation as specific as that for NVQs is inappropriate. These young people are not ready to commit themselves to specific vocational areas and industry’s needs are not fully served by recruits whose vocational preparation is confined to specific vocational skills. The Government has perceived the need for a new type of vocational qualification for such young people and NCVQ is co-ordinating the development of General NVQs (GNVQs) to provide mainly for young people in full-time post-compulsory education. GNVQs will be concerned with more general vocational education and training than NVQs and will usually be linked to full-time courses. The qualifications are being developed by BTEC, C&G and RSA and will be available at levels 1, 2 and 3, i.e. up to and including equivalence with A-levels. The first courses at levels 2 and 3 started in September 1992. As GNVQs become fully available and tested, it is intended that other qualifications such as BTEC First and National Diplomas will be phased out. The roles and functioning of the main players in the vocational qualification scene are summarised in Box B.

**Box B**

**VOCATIONAL QUALIFICATIONS: COMPARISON OF THE MAIN AWARDING BODIES**

<table>
<thead>
<tr>
<th></th>
<th>C&amp;G</th>
<th>RSA</th>
<th>BTEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most qualifications are designed to certify attainment and skills for particular categories of employment</td>
<td>Most qualifications are designed to certify attainment and skills for particular categories of employment</td>
<td>Qualifications certify wide-ranging work-related education</td>
<td></td>
</tr>
<tr>
<td>Progression structure linked to NVQ framework</td>
<td>Two progression structures – stages 1, 2 and 3 for examined schemes and a certificate followed by three levels of diploma for assessed and verified schemes</td>
<td>Main qualifications are at one of three levels: First, National and Higher National; Diplomas and Certificates are awarded at all three levels</td>
<td></td>
</tr>
<tr>
<td>Uses a wide range of types of student assessment, including external examinations and assessments</td>
<td>Uses a wide range of types of student assessment, including external examinations and assessments and externally verified internal assessment</td>
<td>Validates courses and moderates student assessments operated by colleges and other centres</td>
<td></td>
</tr>
</tbody>
</table>
ENSURING BREADTH IN THE CURRICULUM FOR FULL-TIME 16-19 STUDENTS

43. A major difference between colleges of further education which are not sixth form colleges on the one hand and schools and sixth form colleges on the other is that the latter are legally obliged to provide religious education and a collective act of worship for all students other than those whose parents wish to have them withdrawn.

44. Schools are also required by the 1988 Education Reform Act to strive to secure a curriculum which

(a) promotes the spiritual, moral, cultural, mental and physical development of pupils at the school and of society; and

(b) prepares such pupils for the opportunities, responsibilities and experiences of adult life.

45. Nevertheless there is a general move, especially in larger institutions of all kinds, to establish general support and a range of supplementary studies and activities, to develop the knowledge and skills important to adult life. This includes tutorial support and careers guidance, as well as taught components covering study skills, arts, social, political, health and economic issues, but less commonly science and technology. Appropriate support and guidance are more likely to be provided on a firmly organised basis in the larger institutions. In many cases, such study leads to examinations, including General Studies A-level, a number of additional GCSEs and a number of vocational qualifications. Broadening of the learning experience is not addressed solely through the choice of material to cover during courses; teachers often seek to broaden the learning experience through their approaches to teaching and learning.

46. A range of 'common skills' including numeracy, communication, the use of information technology, working with others and problem-solving, are assessed as an intrinsic part of BTEC diplomas. An HMI report on the C & G certificate in travel studies\(^1\) emphasises the value of a broad approach to the curriculum: 'In the best practice the C&G syllabus is treated as the minimum learning to be achieved during the courses and considerable efforts are made to develop the students' personal and transferable skills and to broaden their understanding of related matters such as the economic and environmental impact of tourism. Most courses, however, focus exclusively on a narrow range of operational skills required in retail agency work.' An HMI report on work leading to NVQs in catering\(^2\) emphasises the diverse and challenging experiences, the wide range of settings, the responsibility, teamwork and positive attitudes resulting from the demands of preparing for the new NVQ qualifications. Similarly, a range of courses in leisure studies are praised by HMI for their varied and challenging learning activities, which include study visits, work experience and often residential study\(^3\). In sixth form colleges, HMI found that work experience was usually confined to those on one-year courses. Otherwise there was little direct student contact with industry or other sources of employment. Some schools setting up

\(^1\) HMI Report 24291/NS : 'Full-time Courses Leading to City and Guilds Certificates in Travel Studies'.

\(^2\) HMI Report 3692/NS : 'The Contribution of Further Education Colleges to National Vocational Qualifications in Catering'.

\(^3\) HMI Report 1092/NS : 'Leisure Study Courses in Three Colleges of Further Education'.

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vocational courses had found it difficult to gain the interest of industrialists in planning, assessment and evaluation.

47. In a recently published report on the programmes of A-level students\(^1\) HMI recorded that all the schools and sixth form colleges and half of the FE colleges visited provided opportunities for activities or study apart from A-level subjects. Underlying this provision was a concern to avoid narrowly specialist programmes of work, and a few institutions were developing the concept of a 'curriculum entitlement'. HMI noted that some of the FE colleges, however, did not provide additional studies or activities on the grounds that students did not want them.

EXTERNAL REGULATION OF 16-19 PROVISION

48. The Government has been concerned that there should be rigorous monitoring of educational institutions. Until just recently, inspection of schools and colleges was undertaken both by Her Majesty's Inspectors of Schools and by inspectorates set up by LEAs. Following the Education (Schools) Act 1992 the Office for Standards in Education (OFSTED) and the Office of Her Majesty's Chief Inspector of Schools in Wales (OHMCI) have been established. OFSTED in England and OHMCI in Wales have responsibilities which include monitoring the standards achieved and the quality of teaching and learning in all schools in England and Wales. From September 1993 a regular cycle of inspections of secondary schools is to begin. The cycle is designed to cover every secondary school once every four years in England and once every five years in Wales. The inspections are to be carried out by inspectors registered with OFSTED or OHMCI. Assessment of the quality of teaching and learning in sixth form colleges and FE colleges will rest with the FEFCs after these colleges are vested in their corporations.

49. Teachers' assessments of students' work and certain other aspects of post-16 courses receive attention from awarding bodies. Several vocational awarding bodies visit educational

\(^1\) HMI Report 213/91/NS : 'The Programmes of Students on GCE A-level Courses'.
institutions and scrutinise aspects of the courses and of course management. Such visits are particularly important where assessments for the awards are carried out internally.

50. Awarding bodies themselves are subject to regulation. For the GCE and GCSE boards the regulator is the School Examinations and Assessment Council, which the Government proposes to merge with the National Curriculum Council to form a new School Curriculum and Assessment Authority. NCVQ regulates the work of vocational awarding bodies within the NVQ and GNVQ framework. The Government intends that vocational qualifications for all members of the workforce will come within the NVQ framework, but at present most of those studying for vocational qualifications are studying for qualifications which are not accredited by NCVQ.

51. LEA-maintained schools are subject to audit both by LEA internal auditors and by their LEAs' external auditors, who are appointed by the Audit Commission. The external audit includes reviews of value for money. GM schools, FE colleges and sixth form colleges appoint their own external auditors and the audit has a mainly financial focus.

* * *

52. The main features of the 16-19 education scene are:
— continued full-time education has become the normal first stage after completion of compulsory schooling;
— publicly funded 16-19 education takes place in a diverse range of schools and colleges, involving several separate funding structures;
— the qualifications which students are working towards are diverse, both in purpose and in the ways they are operated;
— institutions and qualifications are undergoing far-reaching changes; institutions are being given greater freedom and new measures to co-ordinate the various qualifications are being introduced.

53. The pace and extent of change create an obligation to devise methods for evaluating the success of those changes. The next chapter considers the problems and possibilities.
2. How Effective is 16-19 Education?

54. Effectiveness in education is difficult to define. A full definition would take account of all the ways in which education affects people's personal fulfilment and their contributions to society throughout their lives. The task for those seeking to monitor effectiveness is to find practical indicators. A number of types of evidence can be looked at in relation to the 16-19 phase:
— participation rates, because they indicate young people's views of the worth of 16-19 education;
— numbers of qualifications in the general population, because a key purpose of 16-19 education is to increase these;
— proportions of students who succeed on 16-19 courses;
— 'value added' by A-level and GCSE courses, because value-added evaluations take account of the progress which students make;
— interested parties' views on the quality of the 16-19 curriculum;
— the quality of students' work as evaluated through inspection.

55. Despite their flaws (for example, participation rates are affected by the range of alternative opportunities available to school leavers), all these types of evidence are relevant. This chapter discusses each of them and mentions the link between assessed quality of work and data on value added by courses. The last section of the chapter discusses guidance of school pupils in their last year of compulsory schooling because of the impact of choices at that stage on subsequent success.

PARTICIPATION RATES

56. As many commentators have pointed out, participation in post-16 education and training in Britain has been low during the last decade compared with that in other developed countries (Table 2, overleaf), even though it has been increasing in recent years (Exhibit 4, overleaf).

57. Although the rate of participation in full-time education is now higher than ever, it is uneven across the country. In 1989/90, the participation rate at age 16 was below 50% in 33 English LEAs and above 70% in five LEAs (out of 96).

NUMBERS OF QUALIFICATIONS IN THE GENERAL POPULATION

58. Participation figures do not show how many of those who participate achieve worthwhile qualifications, how many fail to complete their courses and how many complete their courses but are unsuccessful. None of the available national or international statistics shows success rates in these terms.
Table 2
FULL-TIME PARTICIPATION IN EDUCATION AND TRAINING OF 16 AND 17 YEAR-OLDS IN DEVELOPED COUNTRIES (1988)

<table>
<thead>
<tr>
<th></th>
<th>% at 16</th>
<th>% at 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>76</td>
<td>52</td>
</tr>
<tr>
<td>Belgium (1987)</td>
<td>92</td>
<td>82</td>
</tr>
<tr>
<td>Canada</td>
<td>100</td>
<td>77</td>
</tr>
<tr>
<td>Denmark</td>
<td>90</td>
<td>79</td>
</tr>
<tr>
<td>France</td>
<td>82</td>
<td>73</td>
</tr>
<tr>
<td>West Germany</td>
<td>71</td>
<td>49</td>
</tr>
<tr>
<td>Italy (1987)</td>
<td>65</td>
<td>55</td>
</tr>
<tr>
<td>Japan</td>
<td>93</td>
<td>84</td>
</tr>
<tr>
<td>Netherlands</td>
<td>93</td>
<td>77</td>
</tr>
<tr>
<td>Spain</td>
<td>68</td>
<td>58</td>
</tr>
<tr>
<td>Sweden</td>
<td>84</td>
<td>73</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>United Kingdom (1989)</td>
<td>53</td>
<td>36</td>
</tr>
<tr>
<td>England (1991, estimate)</td>
<td>67</td>
<td>49</td>
</tr>
<tr>
<td>USA (1989)</td>
<td>94</td>
<td>87</td>
</tr>
</tbody>
</table>

Source: Education Statistics for the United Kingdom 1992 (1992 draft edition), quoted in Parliamentary answer by Mr Nigel Forman, former Under-Secretary of State, DFE.

Exhibit 4
FULL-TIME PARTICIPATION IN EDUCATION AT AGES 16 AND 17 IN ENGLAND SINCE 1983
Participation has been increasing in recent years.

Source: DFE Statistical Bulletin 14/92. The 1991 figures are estimates.

59. What is available is a series of research studies which analyse levels of skill and qualification in comparable employment sectors in Britain and in other countries (Exhibit 5). Such comparisons need to be treated with caution. Most obviously, they are dated and there have been important changes in British vocational education in the last decade. Moreover, formal study
Exhibit 5
NUMBERS OF PEOPLE ACHIEVING COMPARABLE QUALIFICATIONS IN FRANCE AND BRITAIN IN THREE VOCATIONAL AREAS
In all three vocational areas, far more people achieved qualifications in France, although the populations of the two countries are similar.

![Bar chart showing numbers of people in vocational areas in France and Britain]

Note: The study of building crafts training also covered West Germany and reported a figure of 60,000 – nearly three times the figure for France.

between the ages of 16 and 19 is only one of the means by which the workforce develops skills and obtains qualifications. Nonetheless, the comparisons indicate that 16-19 education in Britain under-performs by international standards.

SUCCESS OF COURSES
60. Too few of the young people who enrol on 16-19 courses complete their courses successfully (Exhibit 6, overleaf).

61. For this analysis, success on the course has been defined by reference to success in the main or minimum aims of the course within the planned time allotted to it. For example, success on an A-level course means the achievement of two A-level passes. Success on a BTEC diploma course means achievement of the relevant diploma. Success on a City and Guilds course means success in the main qualifications of the course. This definition of success does not differentiate amongst the different degrees of success which are possible on most courses; it does not count students as successes if they achieve worthwhile results below the minimum aim of their courses or if they achieve the aims after the planned completion time. Unexamined purposes of courses are left out of the reckoning as are students’ subsequent destinations.

62. The distinction between failure and non-completion is that failure is taken to refer to students who complete a course but do not achieve the minimum intended aims while non-completion means ceasing to take part in a course before it is over. Variations in the balance between non-completion and failure may to some extent reflect institutional policy: institutions may tend either to allow students to continue if they are doing badly in the hope of improvement or they
Exhibit 6
SUCCESS, UNSUCCESSFUL COMPLETION AND NON-COMPLETION ON FULL-TIME 16-19 COURSES
Success rates are only modest in all kinds of courses.

![Graph showing success rates for different courses]

Notes: 1. Percentages are expressed in relation to the number of students enrolled at 1 November at the start of the course, thus excluding drop-out and course changes in the early weeks of the academic year.
2. A two-year A-level course is defined as any course planned to last two years in which students study towards at least two A-level subject examinations other than General Studies, whatever else they study for in addition to these two A-levels.

Source: Audit Commission/HMI fieldwork. Results of 3690 students in 38 schools and colleges.

may encourage such students to seek an alternative activity in which they have a better chance of success.

63. Despite its starkness, the definition of success as the achievement of intended aims within the intended time is important. In the 16-19 phase of education, there is a range of different options to choose from. A choice of course is only appropriate for a student if she or he has a reasonable chance of achieving the minimum aims of the course. Obtaining qualifications is a central purpose of all courses for these students.

64. In contrast, student destinations convey only limited information about how effective a course has been, even though they are obviously important: destinations depend heavily on prevailing economic conditions; first destination information is often not comprehensive; first destinations may be short-lived and job classifications are often uninformative. It is not enough for records to show into which industry a student moved. For example, it would count as a success for a building craft course if a student leaving it entered a building craft job but for that student to enter a building labouring job would not be a success for the course.

65. A key argument in favour of looking at success defined in these terms is cost. When a student enrols on a course, public expenditure is committed to helping the student towards successful completion of the course. If the student does not obtain the intended qualifications, the expenditure has not demonstrably achieved the purpose for which it was committed.

66. On a national level, extrapolation from the fieldwork sample suggests that of the order of 150,000 young people each year are leaving full-time courses without achieving what the course was designed for, either through leaving early or through failure in the relevant examinations and
assessments. It would be unrealistic to expect 100% success, and data from the fieldwork do not on their own show what a reasonable success rate would be. But if success rates could be raised from 70% to 80%, there would be a gain equivalent to 50,000 student places a year. The gain would doubtless involve a mixture of improved completion by students on current courses and admission procedures which ensure students and courses are better matched. The reasons for non-completion vary and not all are within the control of a school or college.

67. The degree of success of courses is by no means even (Exhibits 7 and 8). In some types of course, the lack of success found in the fieldwork is nothing short of alarming.

Exhibit 7
SUCCESS, NON-COMPLETION AND UNSUCCESSFUL COMPLETION ON CERTAIN TYPES OF VOCATIONAL COURSE
Non-completion and failure rates vary markedly between different vocational areas.

Source: Audit Commission/HMI fieldwork: 29 First Diploma courses, 32 National Diploma courses and 11 C&G courses.

Exhibit 8
SUCCESS, NON-COMPLETION AND UNSUCCESSFUL COMPLETION ON PARTICULAR 16-19 COURSES IN SELECTED INSTITUTIONS
The range between most and least successful courses is wide.

Note: Each bar refers to a single course at a single institution selected to illustrate the range of success rates.

Source: Audit Commission/HMI fieldwork. Results of 176 students in total.
68. A recent HMI report\(^1\) discusses management issues relevant to the reduction of non-completion, including the selection of students for courses. The inspection on which the report is based showed that 13% of 2000 students from different courses had withdrawn by the end of six months, and up to 40% from some courses. Most had changed courses or institutions or both, or had changed employment, or were personally affected by changes in employment or at home. Overall, the subjects with the worst record were art and design, and business studies; the best, construction. One college had reduced its non-completion rate to 4% by taking such steps as seeing that students were well-informed and prepared, securing good communication with feeder schools, and developing appropriate starts to courses. Other HMI studies have found 25% of students failing to complete an A-level course. In addition, many students accepted for admission fail to join courses, which has led some institutions to defer interviews till the beginning of the academic year.

69. The present study's fieldwork underlines the effect of the selection of students on non-completion. Taking a 'basḱet' of vocational courses together, non-completion rates are higher for students with lower prior GCSE attainment (Exhibit 9). For BTEC National Diploma courses in Business and Finance non-completion also shows a relationship with prior GCSE attainment: 13% non-completion for students with fewer than 32 GCSE points and 8.6% for students with 32 GCSE points\(^2\) or more. For A-level courses there is also a marked relationship (Exhibit 10).

\textit{Exhibit 9}

THE RELATIONSHIP BETWEEN NON-COMPLETION AND PRIOR ATTAINMENT ON A 'BASKET' OF VOCATIONAL COURSES
Non-completion shows a link with prior GCSE attainment.

![](image)

\textit{Notes:} The graph is based on data from nine C & G and BTEC First Diploma courses in five different FE colleges, involving 187 students.
Details of the formula for expressing students' GCSE results as scores are given in Appendix 1.
Source: Audit Commission/HMI fieldwork.

\(^1\) 28191/NS: 'Student Completion Rates in Further Education Courses'. March 1991.
\(^2\) See Appendix 1 for the scoring system.
Exhibit 10
THE RELATIONSHIP BETWEEN NON-COMPLETION AND PRIOR ATTAINMENT ON A-LEVEL COURSES
There is a marked relationship between prior GCSE results and the non-completion rate.

Note: Details of the formula for expressing students' GCSE results as scores are given in Appendix 1. Source: Audit Commission/HMI fieldwork. Records of 638 students.

70. This indicates that, for some courses at least, the application of more exacting entrance conditions may be part of a solution to the problem of non-completion – along with better teaching and in-course counselling. In particular the evidence from the fieldwork implies that students with modest GCSE results (e.g. below a 'points score' of 32 – that of a student with grade D in three subjects and grade C in four subjects) should not be admitted to A-level courses without being made aware of their low chances of success (Exhibit 10). It will be vital to ensure that appropriate alternative provision is available for those who are discouraged from enrolling on A-level or other courses to which admission is made less open. HMI studies also point out that even where most students were well qualified to tackle A-level, many were doing so in subjects where their previous attainments had been modest, and over 50% chose at least one new subject for which they had no qualification.

71. A disturbing feature which the Audit Commission/HMI team discovered is the lack of data on student enrolments, initial qualifications and final qualifications, data which are essential to analysis of course outcomes such as the numbers of successful, unsuccessful and non-completing students on courses. There were deficiencies in availability of basic data in 15 of the 38 institutions where the team attempted to collect it. Schools and colleges should ensure that routine recording covers these items because student success, failure and non-completion are fundamental indicators of how well courses are achieving their objectives.

72. Lack of records of qualification data and insufficient use of data have both been found in HMI inspections of schools and colleges. There has been insufficient analysis of examination results to inform teaching and guidance. There remain considerable variations within institutions as well as between them. Some examples of the problems that need this type of investigation are:
— in one college the pass rate in one English class was twice that of another;
— elsewhere, students entering the AS examination after only one year of study achieved poor results;
— some students have been entered for AS and A-level in the same subject, using AS as an insurance against poor performance at A-level, but the AS results were worse than the A-level results in the same subjects;
— only 20% of students on a civil engineering course passed in a college where the general pass rate was 90%;
— few colleges set performance standards;
— internal college reviews seldom evaluate the standards achieved;
— there are weaknesses in schools' assessments of the outcomes of their guidance.

GRADES OF RESULTS AND VALUE ADDED ON A-LEVEL COURSES

73. A statement of the proportion of students who reach the minimum intended goals of a course clearly describes one key aspect of that course's effectiveness. But it does not take account of the different grades of successful final results: the grades achieved determine, for example, the range of higher education courses to which a student can expect to be admitted. Where a course involves graded qualifications, statements about the course's results should show the numbers of each grade awarded to students on the course.

74. Until Autumn 1992, most of the published information about examination grades was concerned with A-levels and raw results, such as the percentage of A-levels achieved at grades A and B. Such information is informative but conveys nothing about students' progress. Individual sixth forms and colleges manifestly differ in the educational attainments of their intakes of students. Most commentators argue that information is needed on the progress made by students to judge the effectiveness of courses.

75. In the future, Key Stages 1 to 4 of the National Curriculum will provide a common basis for describing progress quantitatively because the assessments will be reported using the same levels (1 to 10) to measure attainment. So it will be possible to summarise progress — the value added at each stage — in terms of these levels. At present this approach does not reach beyond age 16 and is unlikely to. So success at 17, 18 or 19 cannot be quantified on the same scale as earlier success. However A-level and GCSE both have grade scales which allow student grades to be translated into scores. Thus it is possible to use a GCSE score to indicate the level at which students start their 16-19 courses and to set this score beside the final A-level score. The 'value-added' evaluation then consists of comparison of the final A-level attainment of students who complete their course with the attainment normally expected for students starting with their levels of prior GCSE attainment (Exhibit 11).

76. To measure value added, a number of steps are needed:
— a method for expressing each student's A-level results as a score;
— a similar scoring scheme for GCSE results;
— a formula for expressing the A-level score to be expected from a student with any given GCSE score.
ILLUSTRATIVE VALUE-ADDED RESULTS

Student 2 has better A-level results than student 1 but a less good value-added result.

The whole process rests on the rigour and consistency of the examination system. If, for example, the examination standards were to change from one year to the next, comparisons of one year using the previous year’s standards would be invalid.

77. Given the three items listed in paragraph 76, it is possible to say whether a student’s actual results are above, below, or at the level generally expected for students starting with similar levels of initial attainment. Young people whose A-level scores fell below the ‘general standard’ line could be said to have done worse than would have been expected of their previous performance, whilst those above it could be said to have done better.

78. Very few young people’s scores fall exactly on the line; most tend to cluster around it. Differences of this kind are to be expected and a number of young people obtain scores considerably above or below the line. This is encouraging for students with modest GCSE scores because it shows that although A-level results are influenced by prior GCSE results, they are not fixed by them. Effective study and good teaching can lift students’ performances. Conversely, ineffective learning or poor teaching can depress them. A measure of a course’s or institution’s success is the average amount by which its students’ results exceed or fall short of expectations (Exhibit 12, overleaf). Expressed in terms of a graph, the course’s score is the average vertical distance between the points on the graph representing each student’s results and the ‘general standard’ line, with points above the line contributing positive values to the average and points below the line contributing negative values. Such measures can be calculated either for individual subjects or for a whole A-level course in which two or more subjects are taken.

79. Details of the calculations used in this report for A-level value added are given in Appendix 1. For scoring A-level and AS results, the UCAS scheme is used in a way similar to that set out in the Government Circulars on the reporting of school pupils’ examination results. But A and AS results in General Studies are not included because these results do not reflect attainment reached by following specific courses of preparation similar to those for particular
Exhibit 12
VALUE-ADDED PRESENTATION OF A-LEVEL RESULTS FROM TWO SCHOOLS
In school A, results are on average below the expectation given students' GCSE attainment...

...while in school B results are slightly above the expectation.

Source: Audit Commission/HMI fieldwork.

subjects and not all students capable of passing these examinations attempt them. The exclusion of General Studies results is done to establish a sound basis for comparative evaluation of institutions’ courses; the exclusion is not intended to call into question the value of General Studies examinations for other purposes.

80. A similar scoring system has been adopted for individual GCSE subjects. But a student's overall GCSE score has not been taken as the sum of the scores in all the subjects taken. It is the sum of grade scores in English, mathematics and the best five other grades (or all other grades, if fewer than five other subjects were attempted – but 72% of school leavers attempt at least seven GCSE subjects). This formula is intended to give due weight to a range of achievement without putting too high a premium on the number of subjects taken. In practice it produces results for A-level 'value added' close to those from other scoring systems such as the average score over all subjects entered.

81. Success at A-level correlates well with achievements at GCSE (Exhibit 13). So the formula for expressing the A-level score to be expected from any given GCSE score is established using the procedure of statistical linear regression.
Exhibit 13
A-LEVEL SCORE COMPARED WITH GCSE EXAMINATION SCORE
A-level results are generally better for students who start with good GCSE results.

Note: The regression of A-level results against prior GCSE results yielded a correlation coefficient of 0.62.
Source: Audit Commission/HMI fieldwork. Results of 1988 students in 29 schools and colleges.

82. Value-added evaluations of institutions show a very different picture from that which comes across from tables based only on students' final results (Exhibit 14).

83. Value-added evaluation of A-level work is used by a number of groups and individuals as a tool to inform institutions' internal management. The longest-established and most widely applied value-added evaluation system forms part of the A-level Information System (ALIS) operated by the School of Education of the University of Newcastle upon Tyne. ALIS is a collaborative research and development project to which more than 170 member schools and colleges subscribe. A range of data and information are gathered from the institutions and from the A-level students. Analysis of data from all members yields comparative information which is fed back without identifying any member's results to the other members.

Exhibit 14
SCHOOL AND COLLEGE A-LEVEL PROVIDERS RANKED IN ORDER OF FINAL A-LEVEL OUTCOME AND VALUE ADDED FOR COURSE COMPLETERS
The value-added ranking is completely different from the final outcome ranking.

Source: Audit Commission/HMI fieldwork. Results of 1895 students.
84. One school which is a member of ALIS recently identified that its students' biology results were below expectations, even after taking account of their overall prior GCSE results. The students who had done least well were found to be those who were not simultaneously studying chemistry A-level and those who had only achieved grade C in GCSE mathematics. The chemistry and mathematics teaching within the biology A-level course has since been amplified and biology A-level results have improved. Another school found that ALIS data were critical to gaining the acceptance by teaching staff of a need to examine mathematics teaching methodology. The school reports that by following up the ALIS data with investigation of the reasons for under-achievement in mathematics A-level, it has now partially solved the problem of under-achievement in mathematics.

85. Most other operational applications of value-added evaluation are confined to single institutions and therefore do not show institutions how they compare with others. Nonetheless these applications provide worthwhile support to the institutions' management. For example, Widnes Sixth Form College and Greenhead Sixth Form College in Huddersfield use their own value-added evaluations to monitor the progress of course groups and of individuals; a number of other schools and colleges have adopted the approach of Greenhead Sixth Form College. Information generated by these evaluations informs the planning of interventions such as management support to teachers and in-service training. But the clear conclusion of various HMI studies is that few institutions identify the extent to which students are building upon their previous achievements. Few colleges keep records relating success at GCSE to A-level and AS.

86. Current value-added evaluations are used by individual institutions to focus the attention of staff in particular academic departments on areas where improvement is needed. The evaluations are not present used within external monitoring processes. The DFE has said that the Secretary of State will consider how value-added measures might contribute to informing parents about schools, in the light of further work on the construction of such measures (Circular 7/92).

87. Value-added evaluations can be used to address wider questions than the degree of success of particular departments or institutions. One of these is the effectiveness of particular types of institution. It could also be useful in examining the success of courses in meeting the needs of specific sub-groups, such as those of students with a similar prior qualification, a similar cultural or ethnic background or of one particular gender.

88. In 1991, the Audit Commission commissioned a value-added study of the achievement of A-level students within a sample drawn to be representative of the whole 16 and 17 year-old cohort. This study (reported in the Audit Commission's Working Paper Two B's or Not? ... Schools' and Colleges' A-level Performance) underlined the feasibility of value-added evaluation, showed the usefulness of GCSE as a prior indicator of A-level achievement and explored the variation in the effectiveness of different types of institution. The analysis found that no single type of institution appeared markedly more effective at A-levels than the others.

89. Subsequent Audit Commission/HMI fieldwork in 28 schools and colleges yielded similar results (Exhibit 15). Newcastle University explored the issue further for this study, using the examination results of a much larger sample of 19,000 students studying in schools and colleges which are members of ALIS. This work found small but statistically significant differences
Exhibit 15
SCHOOL AND COLLEGE A-LEVEL PROVIDERS RANKED IN ORDER OF VALUE ADDED ON A-LEVEL COURSES
Different types of institution appear at all points in the rank order.

![Atainment above/below expectation given students' GCSE attainm](chart)

Source: Audit Commission/HMI fieldwork.

between types of institution in the overall value added to their students – an average of 1½ UCCA points between the most and the least successful types of institution. The types of institution were ranked in decreasing order of value added as follows: 13-18 comprehensive schools, 11-18 comprehensive schools, sixth form colleges, FE colleges other than tertiary colleges (there were no independent schools or tertiary colleges in the analysis). This rank order between different types of institution was not maintained in any individual A-level subject results, and for individual subjects no important differences were found between different types of institution.

90. Taking all subjects together, half of the schools and colleges are closely bunched, with little significant difference in performance. But the differences between the best and worst are significant. The best 10% of schools and colleges add an estimated 6 or more UCCA points to their students compared with the worst performing 10% of schools and colleges. This could easily be the difference between obtaining or not obtaining a university place for a young adult. However, there is no clear general pattern which explains the variation in performance. For example, smaller sixth forms appear generally to achieve results similar to those of sixth forms which are not small (Exhibit 16, overleaf). Moreover results were not consistent from one year to the next. For a portfolio of subjects, statistical comparison of value-added results from 1990 and 1991 from schools and colleges which are members of ALIS yielded a year-on-year correlation coefficient of 0.21.

VALUE ADDED BY POST-16 GCSE COURSES

91. It is striking that of all the types of course taken by 16-19 year olds, A-level is the type for which value-added evaluation has developed furthest. How far is this kind of evaluation applicable to other courses? Post-16 GCSE courses lend themselves readily to value-added evaluation, because value added can be measured directly. Since final and initial examination
Exhibit 16
THE VALUE ADDED BY A-LEVEL COURSES IN SCHOOL SIXTH FORMS OF DIFFERENT SIZES
There is no clear link between size and value added.

Note: Figures in bold are the numbers of students in the sixth form.

attainment are both of the same type – GCSE – the value added can be defined as the gain in aggregate GCSE attainment from the beginning to the end of the course. The substantial number of students on such courses suggests that evaluation is called for. In January 1991 there were 46,000 post-16 students studying on GCSE courses in English schools and sixth form colleges (14% of their post-16 students), in addition to students on these courses in FE colleges and in Wales.

92. Evidence from Audit Commission/HMI investigations gives grounds for concern. Looking at the results of students taking three or more GCSE subjects, the general level of their

Exhibit 17
THE VALUE ADDED BY POST-16 GCSE COURSES
The general level of students’ GCSE gain is unimpressive; for example only two thirds of students gained four or more GCSE points.

Note: A gain of one point is equivalent to an improvement of one grade in one subject (details in Appendix 1).
Source: Audit Commission/HMI fieldwork. Results of 456 students.
GCSE gain is unimpressive (Exhibit 17, opposite). And the increase in the number of subjects in which students have a grade C or above is modest for many students (Exhibit 18). In particular, in 10 institutions out of 18, the average student’s increase in the number of subjects with at least a grade C result was less than two subjects.

Exhibit 18
STUDENTS’ GAINS IN GCSE RESULTS GRADED A-C
Only just over half of students gained two or more new A to C grades.

% of students

<table>
<thead>
<tr>
<th>Number of new A-C grades</th>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 or more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Audit Commission/HMI fieldwork. Results of 456 students.

93. Given the number of post-16 students studying on GCSE courses and the simplicity of the two types of value-added analysis illustrated in Exhibits 17 and 18, schools and colleges should all consider carrying out such analyses for their courses.

THE LEVEL OF ACHIEVEMENT ON VOCATIONAL COURSES

94. There is no history of value-added evaluation for vocational courses, and there are practical difficulties in making it work which do not apply to GCSE and A-level courses:

(i) There are at present no common standards which cover different vocational qualifications or standards which equate vocational qualifications with A-level, AS and GCSE. Even within the range of offerings of a single vocational awarding body, it is not always possible to compare the level of one qualification with the level of another. There is certainly no basis for saying in general whether a qualification is at a higher or lower level than a qualification awarded by another body. This does not preclude quantitative evaluation altogether but it confines comparisons to courses of a similar type in a common vocational area. One of the purposes of the NVQ and GNVQ framework is to establish equivalences among vocational qualifications and between vocational and other qualifications but the framework is still some way short of full implementation. Even within the NVQ framework, qualifications nominally at the same level can be of different degrees of difficulty.

(ii) Some vocational qualifications give graded results; others only report whether the candidate has passed or failed. Some vocational qualifications have graded results in
some of their elements but only pass/fail results for other elements of the same qualification. Where results are ungraded it is not possible to measure value in the same way as for graded courses.

(iii) The qualification objectives which are set for students on a vocational course are often the result of decisions within the institution (Exhibit 19). If one course's qualification objectives are less demanding than those of another course, success in the less demanding course is easier to achieve than in the other – even if both courses are in the same area and some of the qualifications are at the same level. Any evaluation method which judged courses by the extent to which students succeeded in meeting the objectives of the course would inevitably be biased in favour of less demanding courses.

(iv) It is not clear whether GCSE is a good enough predictor of achievement on vocational courses to be used as the baseline for external value-added evaluations of these courses. This issue is explored in a Discussion Paper issued by the Audit Commission and HMI in July 1992\(^1\). Appendix 2 summarises the discussion paper.

**Exhibit 19**

THE QUALIFICATIONS STUDIED FOR ON TWO PARTICULAR TWO-YEAR CITY & GUILDS HAIRDRESSING COURSES

The courses are significantly different.

<table>
<thead>
<tr>
<th>College A</th>
<th>College B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main qualification</td>
<td>NVQ level 2 in hairdressing</td>
</tr>
<tr>
<td>Other qualifications</td>
<td>Certificate in wigmaking;</td>
</tr>
<tr>
<td></td>
<td>Certificate in cosmetics;</td>
</tr>
<tr>
<td></td>
<td>Certificate in manicure.</td>
</tr>
<tr>
<td></td>
<td>Certificate in wigmaking;</td>
</tr>
<tr>
<td></td>
<td>Certificate in media make-up;</td>
</tr>
<tr>
<td></td>
<td>Units from the advanced certificate in hairdressing;</td>
</tr>
<tr>
<td></td>
<td>Certificate 1 of the Institute of Health and Beauty Care.</td>
</tr>
</tbody>
</table>

95. For most vocational courses final attainment is modestly or weakly correlated with prior GCSE attainment. The correlation is in most cases large enough to suggest that prior GCSE attainment has some influence on achievement on vocational courses, but not strong enough for it to be used as the baseline for measuring progress in a value-added approach (Exhibit 20). The correlation is sometimes better when results from individual colleges are looked at alone, which opens up the possibility of colleges using prior GCSE score as a predictor of their own students' final attainments, even where it cannot be used for comparison of value added between colleges (Exhibit 21). The Audit Commission and HMI are undertaking further work on the applicability of value-added approaches to vocational courses using information which FE colleges have supplied on students who completed full-time courses in Summer 1992.

96. The issue of whether vocational results should be graded is a source of controversy. It is currently proposed that overall results in GNVQs will be graded but individual units will not be graded. It is a central principle of NVQs that results are not graded and it is Government policy that NVQs and GNVQs should extend to cover all vocational qualifications and that other qualifications should be replaced by NVQs and GNVQs.

\(^1\) Discussion Paper: 'Can Value-added Indicators be Applied to Vocational Courses?' Issued by the Audit Commission and HMI, July 1992.
Exhibit 20
FINAL RESULTS AND PRIOR GCSE RESULTS OF STUDENTS ON BTEC NATIONAL DIPLOMA COURSES IN BUSINESS AND FINANCE
The relationship between final and prior results is weak.

Notes: Based on results of 242 students on courses in eight colleges. The correlation coefficient is 0.192. For details of scoring formula for BTEC results, see Appendix 2.
Source: Audit Commission/HMI fieldwork.

Exhibit 21
FINAL RESULTS AND PRIOR GCSE RESULTS OF STUDENTS ON A BTEC NATIONAL DIPLOMA COURSE IN BUSINESS AND FINANCE IN A SINGLE INSTITUTION
The relationship between final and prior results is appreciable.

Notes: Based on results of 26 students on the same course in the same college. The correlation coefficient is 0.594. For details of scoring formula for BTEC results, see Appendix 2.
Source: Audit Commission/HMI fieldwork.
97. As the NVQ framework becomes established, possible approaches can be envisaged for scoring courses where all the results on the course are NVQ or GNVQ unit results, even though these are ungraded. The approach would differentiate amongst students on the basis of the quantity of their unit successes in qualifications obtained on the course and the levels of the qualifications in which those successes are achieved. A possible approach might count a success at level 3 as worth three times (or some other appropriate multiple) as many points as a success at level 1 and might count a success at level 2 as worth, say, twice as many points. Adjustments would be made to reflect the number of elements which make up any particular qualification and also to reflect expert judgments about the significance of particular elements. Such an approach would build on the general structure of standards built into the NVQ framework. When there is more experience of courses in which students prepare for NVQs, such an approach should be explored – not least to reinforce the equality of esteem between vocational and academic qualifications – but until then it cannot be tested in practice. Neither this nor any other approach to quantitative evaluation can operate comprehensively until deficiencies in student data records are made good.

THE QUALITY OF THE CURRICULUM

98. A number of statements and initiatives in recent years on 'core skills' have stimulated much thinking in institutions about the objectives of the 16-19 curriculum. Major developments are now taking place in the field of vocational qualifications, with consequent effects upon the vocational curriculum, in particular GNVQs, which all incorporate core skills. On the other hand there is no general consensus about what full-time education for 16-19 year olds should include and HMI have continued to find great variation in the curriculum. The Senior Chief Inspector observed in his annual report for 1989/90 that 'a broad sixth form curriculum underpinned by a sound rationale is still quite rare'; and HMI have recorded that teachers do not always have the skills to teach the 'common skills' required for BTEC qualifications.

99. In some small schools, HMI have found that the limited range of A-level subjects available has meant that the narrow range of combinations did not meet the aspirations of students; consortium arrangements under which two or more schools share sixth form teaching did not always improve the situation as students preferred to take a package they liked less in order to stay in one institution, and some institutions anyway do not wish to co-operate with one another in offering consortium arrangements. Elsewhere the possibilities offered are generally satisfactory and the majority of colleges are able additionally to offer A-level subjects that are rare in schools. The AS examination is still insufficiently used to broaden the scope of courses.

100. HMI have noted deficiencies in accommodation for business administration in a third of colleges, and in a quarter of BTEC First Diploma courses in schools. Also, many tutorial sessions were poorly housed. In some institutions, the combination of shortages of staff, accommodation, equipment and consumable supplies constrains the curriculum so that it has to be offered in specific option blocks. HMI judge that this is only constructive where such packages correspond to the needs of specific vocational aims. Otherwise it can lead to students being channelled into combinations which do not match their aspirations.

101. The Audit Commission/HMI team asked students in the colleges and schools they visited about their transition from compulsory schooling to their current courses and about their attitudes to their courses. The 256 students interviewed took a generally favourable view of their
respective courses, though it was not possible to obtain the views of those who had dropped out (Exhibit 22).

Exhibit 22
STUDENTS' VIEWS ABOUT THEIR 16-19 COURSES
Students interviewed took a generally favourable view of their courses.

<table>
<thead>
<tr>
<th>Does your 16-19 course provide...</th>
<th>'Yes' %</th>
<th>'Yes a lot' %</th>
</tr>
</thead>
<tbody>
<tr>
<td>a useful qualification?</td>
<td>99</td>
<td>76</td>
</tr>
<tr>
<td>ability to study independently?</td>
<td>96</td>
<td>51</td>
</tr>
<tr>
<td>problem solving skills?</td>
<td>84</td>
<td>42</td>
</tr>
<tr>
<td>communication skills?</td>
<td>92</td>
<td>54</td>
</tr>
<tr>
<td>numeracy skills?</td>
<td>79</td>
<td>42</td>
</tr>
<tr>
<td>computing/word processing skills?</td>
<td>63</td>
<td>34</td>
</tr>
<tr>
<td>experience of taking responsibility?</td>
<td>88</td>
<td>44</td>
</tr>
<tr>
<td>experience of working in a team?</td>
<td>85</td>
<td>45</td>
</tr>
<tr>
<td>modern language skills?</td>
<td>34</td>
<td>11</td>
</tr>
<tr>
<td>spiritual development?</td>
<td>33</td>
<td>5</td>
</tr>
<tr>
<td>Does it develop wider interests?</td>
<td>70</td>
<td>55</td>
</tr>
</tbody>
</table>

Source: Audit Commission/HMI fieldwork. Responses of 256 students.

102. HMI recently reported that in schools and sixth form colleges most students were well-disposed towards supplementary studies programmes, which they felt added an extra dimension to their experience in terms of skills, subject-matter and social development. HMI's evaluation of the quality of work seen in these programmes was unusually high: 60% of lessons seen were rated good or very good, and only 15% were considered less than satisfactory.

103. The lack of consensus about what the 16-19 curriculum should contain hampers the evaluation of course curricula, though the development of GNVQs may help to resolve the problem on the vocational side. A broad curricular provision is likely to be more expensive than a narrow one, and it is clear that supplementary studies and activities within A-level courses involve a considerable cost beyond that of the A-level subjects themselves. The cost of supplementary studies was on average 16% of the cost of the 3-A-level courses analysed by the Audit Commission/HMI team.

THE QUALITY OF WORK

104. The quality of students' learning on a course is to a large extent determined by the learning opportunities provided and is manifested in the standards students are seen to achieve. The quality of work can be evaluated while the work is taking place by means of inspection. Outlines of HMI's inspection criteria are contained in the Framework for the Inspection of Schools issued by HM Chief Inspector of Schools, and in FEFC Circular 92/02. Inspection provides a detailed and immediate picture of the quality of work, including aspects of quality which may not be well reflected in examination results (such as observation, questioning, original thinking,
concentration, leadership and teamwork). On the other hand, the qualitative judgments of inspection do not easily lend themselves to quantification.

105. In 1991 HM Senior Chief Inspector of Schools reported that in school sixth forms and sixth form colleges 82% of lessons had been judged satisfactory or better. Teaching, particularly in A-level classes, was often rigorous, scholarly and challenging. High standards were achieved in schools with markedly different characteristics in terms of resources, location and student intake. In FE 90% of classroom practice was judged satisfactory or better, and again there was no clear correlation between the quality of work and the quality of resources. These figures indicate that a large proportion of the work of 16-19 year old students is at least satisfactory, while leaving room for improvement in quality.

COMPARING THE QUALITY OF WORK WITH EXAMINATION RESULTS

106. The accuracy of any comparison between the quality of work and examination results is limited because it almost inevitably means comparing the results of one year’s students with the observed work of the following year, when the staff and the circumstances may have changed as well as the students. Moreover, the focus of inspection is often not upon the work of particular course groups. Nevertheless, it has been possible to make a comparison between HMI judgments of the quality of work and examination results in two sixth form colleges. This comparison reveals a considerable degree of correspondence.

107. At one college HMI found A-level work to be of variable quality, and as much as 30% of the A-level work seen was rated unsatisfactory. Analysis of results of the previous year showed that only 71% of those completing the course, and 56% of those who had enrolled two years earlier, achieved two A-level passes. On average the A-level students achieved two UCCA points (i.e. one A-level grade) fewer than might have been expected in view of their attainment in the GCSE.

108. At the second college 90% of the work seen by HMI was reckoned to be at least satisfactory, and over 50% was considered good or very good. This high rating of work seen corresponded well with examination results at the end of the previous year, when 84% of those who completed the course, and 80% of those who enrolled, achieved at least two A-level passes. Students had achieved on average rather better A-level scores than might have been expected in view of their previous GCSE results, amounting to 0.7 of an UCCA point per student.

GUIDANCE OF STUDENTS ON CHOICE OF POST-16 OPTIONS

109. It is not enough for the qualifications and other aspects of a post-16 course to be generally worthwhile and for the teaching to be of a high standard. It is also important that the course and the individual students enrolled on it be well-matched. Students should have the aptitude and motivation necessary for success on the course. Where non-completion rates are high, it may be that part of the explanation is mismatch. So the guidance and information given to students are vital.

110. Two current developments make it timely to assess how guidance is working in practice. One is the review of organisational arrangements for the careers service announced in the 1991 White Paper Education and Training for the 21st Century and the other is the Government's
encouragement to colleges in the new FE sector to seek to increase their recruitment. This puts a premium on the maintenance of non-partisan guidance services.

111. The careers service is currently a responsibility of local education authorities under the Employment and Training Act 1973. In England, the Careers Service Branch of the Department of Employment is responsible for guiding and inspecting local careers departments and for recommending the support grant funding for them. In Wales these central government functions rest with the Welsh Office’s Economic and Regional Policy Group. In 1991/92, English and Welsh LEAs spent £75 million on the careers service, of which £12 million was funded by a specific grant from central government. The Trade Union Reform and Employment Rights Bill proposes to vest responsibility for securing careers advice in the Secretaries of State (Employment for England and Wales for Wales) and opens up a number of different possible arrangements for them to select for delivery of the service in different geographical areas.

112. A number of surveys carried out in recent years have suggested that there is scope to improve the availability and quality of guidance:

— an unpublished survey by the Department of Education and Science (predecessor of the DfE) in 1988 found that nearly half of LEAs had no careers policy. Sixteen per cent of LEAs also said that none of their secondary schools or FE colleges had a written policy on careers education. Although 88% of schools and 73% of FE colleges had a named careers teacher, the survey found their efforts poorly co-ordinated; their training varied widely and the report concluded that contact between careers teachers and careers officers was ‘too often just routine’;

— a survey by HMI in schools and sixth form colleges in 1990 pointed to unsatisfactory guidance concerned with post-16 options in Year 11 in a quarter of schools; in schools with sixth forms, poor practice included failure to present fully to students the various alternatives to staying at school.

The Audit Commission/HMI team looked at the guidance activity of schools, colleges and careers services for pupils in the last year of compulsory schooling and interviewed students to gain their views and perceptions of the guidance which they had received.

113. The students portray a system which is in general working well (Exhibit 23).

Exhibit 23
STUDENTS’ PERCEPTIONS OF GUIDANCE IN THEIR LAST COMPULSORY YEAR OF SCHOOLING
Students report a system which is generally working well.

| Had a careers officer interview | 85% |
| Received a booklet outlining options available locally | 80% |
| Enrolled on first choice of post-16 course | 73% |
| Current school/ college is the right place to be | 88% |
| Current course is the right one | 92% |
| Current course meeting expectations | 80% |

Source: Audit Commission/HMI fieldwork. Responses of 256 students.
114. The processes leading to this degree of satisfaction were varied and indicate some gaps in the coverage provided by the three main official agencies: schools in which pupils study up to the minimum school leaving age, careers services and post-16 providers.

115. Schools varied in the guidance and information which they arranged for pupils in the last two years of compulsory schooling. Of the schools visited by the study team, just under half organise talks to pupils from representatives of outside post-16 institutions as part of the main curriculum. A fifth organise pupil visits to these institutions.

116. Careers services' direct guidance is provided through personal contact with pupils (interviews, group discussion) and through documentation. Six of the fifteen careers services serving the fieldwork institutions produced booklets identifying which institutions offered each type of post-16 course. Without such a booklet, the only written information available to school leavers is institutions' material promoting their own provision. None of the careers services included in its written information the options outside the county or borough to which the service belonged. None of the careers services distributed information to pupils resident in its area but attending schools elsewhere. Several of the careers services felt concern about the adequacy of information which some schools with sixth forms provided on post-16 options outside the school, and one careers service had curtailed the scope of its published information to accommodate the wishes of schools with sixth forms. And two careers services mentioned limitations in their own services for pupils with special educational needs, for excluded pupils or for long-term absenteees from school.

117. Aside from guidance at school and guidance from the careers service, the third source of guidance to students is the staff responsible for admission to post-16 courses. Practice varies enormously, between highly centralised admissions processes and admissions decided by individual departments and between more and less structured procedures. Empirical evidence to identify good admissions practice is limited but one fairly typical criticism is that the available information is not always used. For example, success on A-level courses is positively correlated with GCSE achievement, which means that GCSE attainment is a useful predictor of A-level attainment, but the entry requirements to A-level study vary widely from institution to institution. Amongst
the study institutions, the lowest entry requirement for a 3-A-level course was three grade Cs and the highest was five grade Cs and one grade B. The low figure implicitly invited some students to study on a course in which they stood little chance of success. A major reason for an institution to study the prior and final attainments of its students is to inform its admission processes.

118. Guidance to students comes from a range of sources, official and unofficial – and unofficial advisers can loom larger than official ones; 28% of post-16 students interviewed said that their parents were the greatest influence on their choice of post-16 option. The other influences mentioned were the person who conducted their admission interview (20%), their school teachers (18%) and careers officers (17%).

*   *   *

119. Despite the intractability of a thorough definition of successful education, this chapter has highlighted a number of practical issues in the area of the effectiveness of 16-19 education and some practical steps available to enhance the monitoring of effectiveness at course level:
   — the rise in participation in full-time 16-19 education from a position where Britain lagged behind other comparable countries;
   — low general levels of skill in the national workforce;
   — variable success rates of courses, measured in terms of the proportion of enrolling students who achieve the courses' intended final qualifications;
   — the need to monitor the numbers of students who do not complete their courses, who complete them unsuccessfully and who complete them successfully;
   — the usefulness and practicability of methods for evaluating students' progress on A-level and GCSE courses;
   — the rôle of inspection in monitoring the quality of courses;
   — the crucial rôle of good guidance based on firm data regarding qualifications and past success rates.

These issues need to be aligned with financial information on the costs of courses so that the best use of available resources can be made.
3. Costs

120. Full-time 16-19 education provision is a costly operation, as Table 3 shows.

121. Expenditure on primary and secondary education per pupil has been rising in recent years, from £1024 in 1979/80 to £1485 in 1989/90 in real terms. However, expenditure per full-time equivalent student in further education has fallen slightly, from £3094 to £2785 over the same period. However, the earlier figure includes institutions other than polytechnics which transferred from the FE sector to the polytechnics and colleges sector in 1989.

Table 3
THE COST OF 16-19 EDUCATION IN DIFFERENT TYPES OF EDUCATIONAL INSTITUTION

<table>
<thead>
<tr>
<th>Sector of Provision</th>
<th>£ million</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEA-maintained Schools (including Sixth Form Colleges)</td>
<td>1008</td>
</tr>
<tr>
<td>Grant-maintained Schools</td>
<td>3</td>
</tr>
<tr>
<td>Assisted Places in Independent Schools</td>
<td>20</td>
</tr>
<tr>
<td>City Technology College Sixth Forms</td>
<td>7</td>
</tr>
<tr>
<td>FE Colleges</td>
<td>890</td>
</tr>
<tr>
<td><strong>Total (rounded)</strong></td>
<td><strong>1930</strong></td>
</tr>
</tbody>
</table>

*Note: The figures are estimated outturns for 1991/92.*

*Source: Audit Commission/HMI estimates based on Government Expenditure Plans.*

122. Under local management of schools (LMS), budgets are allocated to individual schools largely on the basis of the number of pupils and their ages. Schools are under pressure to maximise their use of funds as increasingly they compete with other schools and colleges to attract students.

123. Until April 1993, colleges will be funded by LEAs under schemes of local management which also allocate funds largely on the basis of student numbers, but from April 1993, the responsibility for funding will transfer to the FEFCs. The first year will bring some change and the Councils intend to implement a new methodology from 1994/95.

124. Current funding arrangements for schools and FE colleges do not link funding to the success rates of courses and do not provide any incentive to bias recruitment onto courses towards those students likely to succeed. Close attention to course costs is always worthwhile. Any change to funding arrangements is likely only to increase its importance.

125. Costs of provision vary widely. This can be seen from costings of particular types of comparable course in different institutions (Exhibit 24, overleaf).

126. The variation in costs of courses shown in Exhibit 24 does not take account of differences in the success rates of different courses. But non-completion has a cost effect – it raises the cost of successful completion.
Exhibit 24
TOTAL ANNUAL REVENUE COST FOR STUDENTS ON DIFFERENT TYPES OF 16-19 COURSE.
For each type of course, costs vary widely.
(a) Courses involving three A-levels

Note: Each bar represents a student's course in one school or college, chosen to illustrate the cost of A-level courses of a particular type in that institution. Each course involves study towards A-levels in either mathematics, physics & chemistry or English, French & history (although in some cases it was necessary to substitute courses with combinations of subjects as near to these as the institutions provided). For both types of course, the costs include the costs of any studies supplementary to the three A-level subjects and the scope of these supplementary studies varied from institution to institution. There was no consistent difference between the costs of the two subject groupings.

(b) Courses involving three A-levels, excluding the costs of supplementary studies

Note: The courses represented in (b) are the same courses as in (a), in the same order.
127. In this study, cost data were collected from the schools and colleges visited. The analysis apportioned shares of all the costs of the institutions to courses. Details of the costing method are given in Appendix 3. The method is a ‘bottom-up’ approach which is based on individual student timetables. Most previous costing methods have not generally been geared to supporting straightforward assessments of the impact of the different factors which determine cost and of the likely cost effects of possible changes to individual courses. Such methods have therefore been of less help to managers in seeing how costs may be adjusted by varying group sizes and other factors within the control of an institution. The method developed by the study team is suited to tackling these and other issues, including comparisons of the costs of similar courses in different institutions (Exhibit 25, overleaf).

128. The method requires detailed analysis of the costs incurred by the institution and of the timetable of the course. The method will be used by the Audit Commission’s auditors in the forthcoming round of local value-for-money audits.
Exhibit 25
COMPARISON OF THE COSTS OF COURSES INCLUDING THREE A-LEVELS IN TWO INSTITUTIONS

The costing method pinpoints the impact of group size and class hours on the cost in mathematics.

129. As well as showing the range of costs, application of the method to a sample of courses suggests that A-level provision in small secondary school sixth forms tends to be more expensive than in the other types of institution (Exhibit 26).

130. The variation in total costs of particular courses is mainly due to variation in:

(i) the amount of teaching given to students in the qualification-related parts of the course; this quantity depends on the sizes of teaching groups and on the numbers of hours given to teaching the subjects or modules of the course;

(ii) operational variations in the rest of the course—reflecting decisions on work in addition to that directly connected to the main qualifications students are aiming for;

(iii) institution overheads—activity of the school or college which is not associated with any one particular course.
Exhibit 26
THE RELATIONSHIP OF ANNUAL REVENUE COSTS OF A-LEVEL COURSES TO SIXTH-FORM SIZE
The sample students' courses tend to be more expensive in the smaller sixth forms.

Source: Audit Commission / HMI fieldwork.

TEACHING GROUPS AND TEACHING HOURS
TEACHING GROUPS

131. Clearly the teaching cost per student of a teaching group with, say, 21 students is a third of the cost per student of a group with seven students, and the teaching cost is the dominant cost in all courses. What is significant is that group sizes on full-time 16-19 courses vary through this range and wider (Exhibit 27).

132. And because teaching costs are such a dominant element of overall costs of courses, variation in group size has a huge effect on overall cost (Exhibit 28, overleaf).

Exhibit 27
GROUP SIZES ON 16-19 COURSES
The range is from 1 student to 31 students.

Source: Audit Commission/HMI fieldwork – 139 students' courses in 21 schools and colleges.
Exhibit 28
THE EFFECT OF GROUP SIZES ON OVERALL ANNUAL COSTS OF A-LEVEL COURSES
If teaching were organised so that there were no groups with fewer than 10 students, costs would be reduced significantly.

Source: Audit Commission/HMI fieldwork.

133. Evidence from more general HMI inspection confirms this variation. For example, on one HMI exercise covering schools of differing sizes, half the lessons seen were in groups of less than 10, but others were over 20. In a survey of courses leading to AS examinations, 70% of groups had 10 students or fewer, and 25% had 5 or fewer. Schools seek to keep vocational course groups in the range 9 to 20. In a study of BTEC construction courses the range was 4 to 23, averaging 15.

134. The scope to reduce costs by increasing group size was less on the vocational courses analysed during the Audit Commission/HMI study than the scope on A-level courses; there were far fewer small groups on these courses.

135. One college takes a vigorous approach to the problem of small group sizes. For each course a target allocation of teaching hours is made and a target student enrolment is set. Where the number of students who actually enrol deviates significantly from the target, the head of the relevant department is required to put to the college’s senior staff a plan for adjusting the make-up of courses which uses resources efficiently. For courses which recruit below target, plans typically include reductions in taught hours, mergers of groups with groups on other courses for shared teaching options and in some cases closure of the course. For courses which recruit above target, splits into two groups are considered but not necessarily for the whole timetable. The system allows central control over the use of resources without constraining heads of department from exercising initiative. Use of such a review procedure does not preclude a decision to subsidise a small group or a minority subject but it does ensure evaluation of the costs involved.

136. Another institution, a school, was not so successful in its attempt to prevent small teaching groups from arising. It identified A-level subjects which had small group sizes and determined that in the next year the mode of teaching for these subjects would be modified. There would be closer management of students’ programmes of private study but less teacher contact. This new mode of teaching was attractive to students, who proceeded to opt for these hitherto
unpopular subjects. This left small groups for some of the other subjects, which continued to be taught in the traditional way, with consequent high costs.

TEACHING HOURS

137. Two-year A-level courses devote between 3.6 and 6.3 hours a week to each A-level subject, resulting in a wide range of student-teacher contact time on courses involving three A-level subjects (Exhibit 29).

Exhibit 29
WEEKLY STUDENT-TEACHER CONTACT ON 3-A-LEVEL COURSES
For courses with similar objectives, maximum student-teacher contact time is nearly twice the minimum.

Source: Audit Commission/HMI fieldwork data related to students’ A-level courses involving the two subject combinations English, French & history and mathematics, physics & chemistry. In all cases, hours include hours devoted to any supplementary studies in addition to preparation for the three A-level examinations. Each bar represents the course followed by a student chosen to illustrate the cost of A-level courses of a particular type in that institution.

138. In other HMI surveys, time allocated to individual A-levels ranged from 4.1 to 5 hours. This difference is the equivalent of a term’s tuition over a two-year course, and the lower allocation was judged barely adequate, especially with mixed-year groups.

139. In the fieldwork schools and colleges, A-level courses on which at least one subject was taught for more than 5 hours per week cost on average £3000 per annum. Reducing teaching in all these subjects to 5 hours a week would reduce the cost to £2800.

140. On vocational courses, variations in taught time for the qualification-related elements of the course are also pronounced and this has a significant effect on the costs of courses (Exhibit 30, overleaf). The range for BTEC First in Engineering was from a total each week of 20.5 hours to a total of 27.8 hours. For BTEC National in Business and Finance the range was from 17.5 to 28.5 hours. Especially on vocational courses, teacher contact takes many forms in addition to that of traditional class teaching. The teacher input to such activities as projects, assignments and work placements is of a different nature from that to class teaching but it can be costed in a similar way because the two key types of data can be estimated: the duration of the teacher’s time commitment and the number of students to whom that commitment is directed.
Exhibit 30
TEACHER CLASS CONTACT TIME IN TWO BTEC COURSES
Class contact time can have a significant impact on course costs.

<table>
<thead>
<tr>
<th></th>
<th>BTEC First Diploma Engineering</th>
<th>BTEC National Diploma Business &amp; Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average teacher</td>
<td>Average cost of this course (£)</td>
</tr>
<tr>
<td></td>
<td>class contact hours</td>
<td></td>
</tr>
<tr>
<td>Actual</td>
<td>23.2</td>
<td>3000</td>
</tr>
<tr>
<td>If teacher class</td>
<td>20.5</td>
<td>2600</td>
</tr>
<tr>
<td>hours were minimised</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If teacher class</td>
<td>27.8</td>
<td>3500</td>
</tr>
<tr>
<td>contact hours were</td>
<td></td>
<td></td>
</tr>
<tr>
<td>maximised</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Analysis of Audit Commission/HMI fieldwork data.

141. The variation in taught time for equivalent vocational courses results mostly from variation in the time given to each of the modules of the qualifications.

142. Comparisons of the cost of courses are valid where different colleges' courses are equivalent, as are BTEC courses and certain others, such as National Nursery Examination Board courses. But for many vocational courses colleges design the courses to fulfil aims which differ from college to college – at least in the detailed choice of qualifications. This precludes valid comparisons of the hours of teaching put in to different courses – and also precludes valid comparisons of other resources put in to these courses.

THE AMOUNT OF TIME EACH TEACHER IS IN CONTACT WITH STUDENTS

143. Full-time teachers spend different amounts of their time actually teaching. At present, for most lecturers in FE colleges student contact is determined within a framework laid down in statutory conditions of service. Most lecturers are required to teach for 21 hours a week (or the equivalent, spread over a year) while senior lecturers are required to teach for 18 hours a week. But even in FE colleges there is scope to vary the teaching loads of the teaching staff:

— the complement of senior lecturers can be varied;

— lecturers who carry particular responsibilities in addition to teaching can be given remission from some of their teaching load;

— senior staff, whose contracts do not require them to teach, can undertake some teaching.

144. The issue of lecturers’ non-teaching time is discussed in the Audit Commission’s 1985 report on further education. Since that report was published, the issue has been pursued nationally in other reports, notably The Joint Efficiency Study. And the issue now receives greater prominence than it did in FE colleges.


145. The teaching staff of maintained schools and sixth form colleges are generally subject to national conditions of service different from those of FE lecturers, conditions which are silent about the number of hours of actual teaching which teachers are to undertake – although the conditions do lay down the number of hours each year for which teachers' time can be directed. The monitoring of the use of teachers' time for non-teaching work is less consistent than in FE colleges because of the measure which schools and sixth form colleges use to describe the proportions of teacher time devoted to teaching and non-teaching duties. This measure, called the contact ratio, is the average percentage of the school's weekly timetable which the teachers teach. The measure is already partially invalidated by the variation between schools in the number of hours which they timetable. If schools and colleges become more flexible to accommodate new clienteles, such as increased numbers of adult learners, the contact ratio will become a meaningless statistic for comparisons between institutions.

146. The study team has focused directly on the number of hours for which teachers teach. The number of teaching hours per full-time equivalent member of the teaching staff varies among the institutions studied in the Audit Commission/HMI fieldwork (Exhibit 31). The time needs for teachers' duties other than teaching depend on all the activity of the institutions in which they work, and institutions with 16-19 students vary widely in what they provide other than full-time 16-19 courses. So some variation is to be expected. Nonetheless the range in teaching loads is surprising. This variation inevitably has an impact on course costs.

Exhibit 31
THE AVERAGE WEEKLY TEACHING LOAD IN THE STUDY INSTITUTIONS
The range is from 14 hours per week to 20 hours per week.

Source: Audit Commission/HMI fieldwork data.

VARIATIONS IN THE REST OF THE COURSE

147. A large proportion of 16-19 courses provide teaching in addition to preparation for the main qualifications of the courses. Most schools and sixth form colleges design and operate courses of supplementary study for their 16-19 students. Some, but not all, of this supplementary study work leads to supplementary qualifications. The most common supplementary qualifications are GCSEs – either subjects taken previously in which students seek to secure improved grades, or
new subjects. But many other qualifications are also studied for: specific vocational qualifications such as the RSA diploma in computer literacy and information technology and AS examinations. For A-level students, the picture is further complicated by a qualification for which large numbers of students enter but for which there is only a limited amount of teaching: the A-level in General Studies. For A-level students the costs of supplementary studies programmes vary widely (Exhibit 32). The variation in costs reflects widely different choices of what to provide within courses in addition to study for three A-levels, e.g. study for a fourth A-level, study for other qualifications, religious education (obligatory in schools), other study not leading to certification and no supplementary study at all.

Exhibit 32
ANNUAL COSTS OF SUPPLEMENTARY STUDIES PROVISION FOR STUDENTS ON COURSES INVOLVING 3 A-LEVELS
The range is from £50 to £2,400.

Source: Audit Commission/HMI fieldwork.

INSTITUTION OVERHEADS
148. Although many FE courses for 16-19 students do not include supplementary studies programmes, FE colleges do provide students with opportunities outside their courses which serve some of the purposes of supplementary studies courses. As well as sports facilities, many colleges have facilities for student-managed learning. These 'open learning' facilities include libraries of books, videos and computer software as well as workshops and studios. Open learning facilities incur appreciable costs, especially as their staffing often includes the attendance of lecturers to be on call to students. Since, by their nature, these facilities are not associated with any one course, their costs are usually accounted for as college overheads. It is thus not surprising that FE college courses carry higher overhead costs than do courses in schools and sixth form colleges (Exhibit 33). Although these differences are partially offset by higher supplementary studies costs in schools and sixth form colleges, the average difference in institution overheads is greater than the difference between the costs of supplementary studies in FE colleges and in schools and sixth form
Exhibit 33
OVERHEADS BORNE BY 3-A-LEVEL COURSES IN FE COLLEGES, SIXTH FORM COLLEGES AND SCHOOLS
FE college courses carry higher overheads than do comparable courses in schools and sixth form colleges.

Source: Audit Commission/HMI fieldwork. The percentages are expressed in relation to the whole cost of each course.

colleges. Overheads comprise support staff, an institution's central administration and services, consumable supplies and premises running costs.

149. Like the non-contact time of teaching staff, institution overheads serve different purposes in different types of institution, reflecting the different functions and purposes of those institutions. So it is not possible to conclude from cost data alone whether the difference in overheads is appropriate. What can be concluded, as with non-contact time of teaching staff, is that overheads should be more finely apportioned to the purposes which they serve.

OTHER INFLUENCES ON REVENUE COSTS OF COURSES

150. Other factors have a less strong influence on overall course costs. For instance, the variation in the annual employment costs of teachers is not substantial (Exhibit 34, overleaf).

CAPITAL ASSETS

151. So far the discussion of costs has been confined to costs which are classified as revenue costs. But the premises and other assets which institutions control affect the institutions’ scope to act and in particular affect their revenue costs. An institution’s ability to expand provision is constrained by its premises and the savings from reducing provision can be offset by the need to maintain under-used premises or equipment. So schools and colleges interested in changing their course provision are often also interested in changing their assets. Following incorporation, FE colleges and sixth form colleges may have more influence over their capital assets than hitherto. The significance of capital assets was recognised early by the Further Education Funding Council Unit, which commissioned Price Waterhouse to draw up an inventory of equipment in colleges due to come into the new FE sector.
Exhibit 34
THE RANGE OF COSTS OF TEACHING STAFF ON FULL-TIME 16-19 COURSES
The variation in employment costs is not substantial.

Source: Audit Commission/HMI fieldwork. Costs relate to 275 teaching staff on full-time A-level and vocational courses.

152. The space associated with a particular course is a measure of one type of asset used by that course. HMI/Audit Commission fieldwork data indicates that on this measure, courses vary substantially. A simple measure of a student's use of space on a course is

\[
\frac{A \times H}{G}
\]

where

- \(A\) is the area of the room in which he or she studies (measured in \(M^2\))
- \(H\) is the number of hours of study in a year
- \(G\) is the size of the group in which the student is taught.

By this measure, physics A-level courses varied by a factor of nearly 3 (from 610 to 1800) and English A-level courses varied in their space used by a factor of 17 (from 250 to 4410).

153. Post-16 institutions, especially FE colleges, hold equipment of considerable value. As with premises, the available equipment constrains an institution's scope to alter its provision and its revenue costs.

THE COSTS OF SUCCESS AND FAILURE
SUCCESSFUL COURSE COMPLETION

154. The real significance of costs and course outcomes is apparent when they are set side by side, thereby informing consideration of the deployment of resources and the cost of achieving educational aims. The practical importance of this juxtaposition can be seen from an estimate of the cost of unsuccessful full-time 16-19 courses. The value improvement resulting from a reduction of one third in the number of students who do not succeed would be worth some £150 million each year – as well as many hours of many days of students' time. The achievement of all this value improvement will need an improvement in the match of students and courses. But the size
of the value improvement indicates the importance of seeking ways of improving rates of successful completion.

155. Awareness of the costs of non-completion and failure does not make the remedies any easier. But it does pinpoint where remedies are needed. So in any retrospective analysis of the costs of particular courses, it is useful to uplift the course costs by dividing by the success rate, to yield a cost per successful completion. Clearly such an adjustment is not possible for courses where the students' results are not yet known.

156. A specific use of the link between costs and rates of successful completion is to review whether increased costs bring benefits in terms of higher rates of successful completion. Audit Commission/HMI fieldwork did not find any evidence that in general higher costs bring higher rates of success (Exhibit 35). However, there are limitations on any conclusions which can be drawn from the comparisons of cost and success, because, as noted in chapter 2, individual student-level data on prior and final qualifications is far from complete. Also the cost data relate to the academic year 1991/92 while the student results are from courses which took place from

Exhibit 35
COURSES FOR 16-19 YEAR OLDS: SUCCESS RATES AND COSTS
The proportion of students who succeed on a course shows no link with the revenue cost of the course.

A-level courses

![A-level courses graph]

BTEC National Diploma Business and Finance courses

![BTEC National Diploma Business and Finance graph]

Note: Entries on the graphs could only be made for institutions which offered the relevant courses and where enrolment records were reliable.

Source: Audit Commission/HMI fieldwork.
1989 to 1991; in some cases, the organisation of teaching and class sizes may have changed significantly, thus affecting the costs of the courses. To the extent that these results are representative, they could imply that the calibre of the students and the quality of the teaching are more important factors in determining success than the cost of the courses.

VALUE ADDED

157. Nor are the benefits of higher costs apparent when success is measured in value-added terms (Exhibit 36).

**Exhibit 36**

**VALUE ADDED AND COST OF A-LEVEL SUBJECTS**

Fieldwork data reveals no link between teaching cost and success measured in terms of value added.

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**Source:** Audit Commission/HMI fieldwork. Each point represents one A-level subject in one school or college.

158. The absence of evidence of a general association between higher teaching costs and above-average student success is consistent with research evidence\(^1\) on school class size and the study team’s impression that the deployment of resources to courses is only partially determined in response to resource needs, with considerations such as custom and practice playing at least as big a part. Although the comparisons of costs with success and value added must be treated with caution for the reasons given earlier, they do expose a serious concern about the variation in costs. However, this does not mean that higher costs are never justified.

159. Even where full data are available, the general pattern of association between costs and success is less useful than the particular cases of individual courses. It is at the level of individual courses that decisions on matters such as group sizes and length of teaching time tend to be taken.

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\(^1\) See for instance review article by Dr. Clare Burstall, Director of the National Foundation for Educational Research, in the education supplement of ‘The Guardian’ dated 7 April 1992.
160. The analysis only relates to the courses’ main qualifications and only covers revenue costs. Similar analyses may not be feasible for parts of courses outside the main qualification or for other types of cost.

161. Teachers and others professionally involved in the design of A-level courses say that courses made up solely of A-level study would be educationally inadequate and are keen to mount supplementary studies programmes to make good this perceived lack. The diversity of supplementary studies programmes and the lack of examinations for much of the work mean that evaluations based on data are not available. HMI inspection evidence (referred to in chapter 2) supports the view of these programmes as providing valuable enrichment of students’ experience but inspection evidence for individual schools and colleges is not at present available as a matter of routine. So it is not generally possible to use inspection evidence to inform the deployment of resources to supplementary studies programmes.

162. HMI inspections have found no correlation between size of group and quality of work, though groups of over 20 could pose marking difficulties for staff, and very small groups often lacked stimulation for students. Some institutions combined A-level groups with AS groups without noticeable reduction in quality.

CHANGING THE COSTS OF COURSES

163. None of the costs of a course is immutable. Steps which affect course costs include:

— opening up or discontinuing a particular teaching group;

— changing the number of hours for which a module or subject is taught;

— recruiting and dismissing teaching and other staff;

— commercial letting of rooms which are not in use for teaching;

— opening up or discontinuing a whole area of provision, e.g. A-level or a particular vocational area.

164. Steps such as these can affect any and all of the items of expenditure of a school or college. Some steps can be taken more readily and more quickly than others. Appraisal of the impact on costs of a potential change can be assisted by the method of analysing costs of courses used for the cost analyses earlier in this chapter.

165. Any change to a course is likely to have knock-on effects – for example, reducing a group’s teaching hours frees teacher time, for which an alternative use has to be found unless total teacher staffing is reduced. And there is inevitably some uncertainty about the precise effects of any step taken to alter costs – opening a new course or offering a new option may attract students away from established provision. A costing method such as this cannot predict these, although it can help in the estimation of the cost effects of possible outturns. So any step designed to have an impact on costs calls for consideration of what is feasible, and what the knock-on effects may be.
THE NATIONAL IMPACT OF COST VARIATIONS

166. The presentation of cost results so far has focused on the level of individual courses, because so many key cost-related decisions are taken at course level. But the many course-level costing decisions combine to have a considerable impact. The only way to estimate the national impact of measures to improve efficiency – or effectiveness – is by extrapolation of the potential combined effect of large numbers of decisions in schools and colleges. Taking the scope for increased efficiency by increasing the smallest A-level groups, the fieldwork data imply a value improvement for education provision in England and Wales as a whole of £180 million a year, the cost of full-time course provision for 60,000 students. Combining this efficiency gain with a one-third reduction in the number of students who do not succeed implies a value improvement of £330 million a year, which could result from students enrolling on more appropriate provision than they do at present, as well as more straightforward efficiency gains. But this value improvement would not be achieved effortlessly. The decisions about individual course provision would be difficult and might have knock-on effects – for instance the need to find appropriate provision for young people who currently enrol on inappropriate courses.
4. Conclusions and Recommendations

167. Although publicly-funded education in something like its present form has been provided for almost fifty years, it is only recently that informative quantitative techniques for assessing its efficiency and effectiveness have begun to be developed and applied. But schools, colleges and LEAs are now having imposed on them a duty to provide quantitative information on how well institutions perform.

168. The Audit Commission/HMI study was designed primarily to advance the development of quantitative techniques for measuring performance and costs. Practical methods have been formulated and shown to be of value to institutions themselves, external inspection agencies and the general public. The importance of such methods has been illustrated by the wide variations in costs and effectiveness identified, and by the experiences of schools and colleges which have closely monitored their performance and acted on the information. The development of the methods has also shown up shortcomings in the collection and recording of information.

169. The recommendations of the study take up these and other findings under three main themes:

— quantitative techniques should be used in performance review – by institutions themselves and by external inspectors – and results should be made available to the public;

— schools and colleges should respond to the information yielded by these techniques and take action to overcome weaknesses and inefficiency;

— as schools and colleges take advantage of their increased freedoms, structures outside individual institutions will continue to be important; in particular the rôle of the careers service will remain crucial and so will procedures for allocating funds to institutions – these allocations must avoid perverse incentives.

QUANTITATIVE MEASUREMENT OF PERFORMANCE

170. Quantitative measures are particularly important for the 16-19 phase of education, because participation in this post-compulsory phase is a matter of the student’s and the institution’s choice, and study is in all cases directed towards the securing of qualifications. Quantitative measures can be directed at three main audiences. One is the inspection and other bodies through which schools and colleges are held to account. The second audience is the internal management of institutions, to help them develop and improve their provision and the third is the immediate clients of the courses – students, prospective students, parents and employers. For these clients, quantitative performance measures can inform their exercise of choice, alongside other types of information such as impressions gained from visits to people involved in the courses. Where there is little or no choice (and for many specialised courses
only those students in dense urban areas may have choice), clients may still value the information as a basis for lobbying for improved performance in the future.

171. An emphasis on quantitative measures does not imply that they can capture all the aspects of the effectiveness of a course. Quantitative data may not relate to students' development of personality, integrity or teamwork, for example. Even for those aspects of the course which are directed at external qualifications, quantitative measures cannot identify fully the quality of teaching and learning.

172. The appropriate focus for quantitative measurement is the course group: a group of students engaged for a specified period on a similar programme of study with a specified set of qualification goals. Schools and colleges need to identify course groups and keep full records of each student's entry qualifications, achievements and date of leaving. (For this purpose an A-level course group would be all those students in an institution at the same stage of A-level courses of the same duration.)

173. Two kinds of measure are appropriate to full-time post-16 courses:

— statements of the proportion of students enrolled at the start of the course who achieve the intended qualifications, with the unsuccessful students broken down into those who did and those who did not complete the course;

— 'value-added' statements, i.e. statements which relate students' achievements at the end of a course to their levels of achievement before they started; practical value-added statements are currently only feasible for A-level/AS courses and GCSE courses.

174. Raw results such as the proportion of students on a course who complete it successfully are important in relation to any kind of course. When an institution enrols a student, it has committed itself to helping the student to success in the qualifications which the course involves, and raw results are a measure of achievement of that commitment. Institutions should draw up, for each course, figures for enrolment, successful completion, unsuccessful completion and non-completion. These figures, together with notes on the reasons for non-completion, should be available to staff, inspectors, auditors, the careers service, students and other interested parties. The DFE and the Welsh Office should modify the requirements for publication of information by schools and colleges to include information on non-completion rates. Currently, the information relates only to those who entered for examinations.

VALUE ADDED

175. This study has confirmed that students' A-level examination achievements are strongly related to their prior achievements at GCSE. So taking account of students' progress from GCSE can give a more sharply focused evaluation of A-level courses than can statements of success rates. Taking account of students' progress requires a comparison of final A-level and AS results with these prior achievements.

176. Value-added evaluations show a very different picture from that which comes across from tables based only on students' final results (Exhibit 14 earlier).
177. A method for scoring A-levels and GCSEs anc estimating the value added between GCSEs and A-levels has been developed and applied by this study, drawing on the experience of existing applications such as ALIS. National application of such a method would require:
— calibration of the formulae relating A-level achievement to prior GCSE achievement, both an overall formula and formulae for individual A-level subjects;
— annual revision of the calibration exercise.

178. Given these, public reporting requirements should be extended to include information on how the achievements of students in each institution compare with what should be expected given their starting qualifications. Students will then be able to set such information beside other information such as the ranges of courses on offer and raw results. In the interim, the formula developed by the Audit Commission/HMI study may be used by institutions to monitor their own performance. Box C overleaf summarises what is involved in calculating a value-added score to help assess the overall A-level performance of a school or college. Such a method is appropriate for institutions offering a balanced mixture of A-level subjects; for institutions with a specialised mixture of subjects, only subject-specific formulae are reliable.

179. Value-added approaches are eminently suited to GCSE courses as well as to A-levels. Such approaches could show two aspects of value added: the number of new subject results at grades A to C which have been achieved and the increase in students' overall GCSE scores, taking into account a portfolio of results.

180. External inspections should use the value-added approach in quantitative evaluation of schools' and colleges' A-level and post-16 GCSE courses. Combined with inspection of teaching and learning, and review of institutions' management, this should give the public incisive information on the performance of courses. The Framework for Inspection issued in August 1992 for inspections to be carried out under the Education (Schools) Act 1992 already recognises the importance of a value-added approach:
— 'The quality of pupils' learning is to be judged in terms of the progress made in lessons...'
— [Evidence on standards of achievement should include] 'pupils' abilities at intake, indicated by test scores and assessments at earlier National Curriculum stages'
— 'Where possible, National Curriculum assessments for the previous key stage should be compared with current key stages, to gauge progression.'

181. A key virtue of value-added evaluations of courses is that they are more relevant to decision-taking than are raw results. For a student trying to decide whether to enrol on a course, the success rate of the course with students who had similar prior qualifications is more informative than the general success rate of the course.

182. For a number of management functions within a school or college, including staff appraisal, it is useful to know whether an abnormal level of achievement by students is partially explained by the students' prior ability. And if performance-related pay is introduced for teachers and lecturers, the use of value-added evaluations may help prevent perverse effects. If performance-related pay were determined without reference to initial attainment, teachers and lecturers with less promising intakes would receive less bonus than their counterparts in other schools or
Box C
CALCULATION OF A-LEVEL VALUE ADDED

1. For each A-level student who completes the course:

   (i) Convert to a numerical score each GCSE subject result obtained before embarking on the A-level course using the formula

   \[
   \begin{array}{cccccccc}
   A & B & C & D & E & F & G & U \\
   7 & 6 & 5 & 4 & 3 & 2 & 1 & 0 \\
   \end{array}
   \]

   (ii) Calculate a single GCSE score by adding the score in English, the score in mathematics and the best five other subject scores (or all the other subject scores if fewer than five other subjects were entered).

   (iii) Calculate an expected A-level score from the formula

   \[
   \text{Expected A-level score} = (1.05 \times \text{GCSE score}) - 29.46
   \]

   (this formula is appropriate for institutions offering a balanced mixture of A-level subjects; for institutions with a specialised mixture of subjects, only subject-specific formulae are reliable)

   (iv) Calculate the score in each A-level subject except General Studies by converting from A-level grades according to

   \[
   \begin{array}{cccccccc}
   A & B & C & D & E & N & U \\
   10 & 8 & 6 & 4 & 2 & 0 & 0 \\
   \end{array}
   \]

   (v) Calculate the score in each AS subject except General Studies and any subjects also entered at A-level by converting from AS grades according to

   \[
   \begin{array}{cccccccc}
   A & B & C & D & E & N & U \\
   5 & 4 & 3 & 2 & 1 & 0 & 0 \\
   \end{array}
   \]

   (vi) Add together the scores from each A-level and AS subject to derive an actual A-level score for the student

   (vii) Subtract the expected A-level score from the actual A-level score to derive the student level residual

2. Calculate the average student level residual for all students who completed the course (negative residuals are subtracted from positive residuals in calculating the average).

colleges. This would make teachers and lecturers less willing to work with less promising students, and institutions serving such students would become doubly disadvantaged.

183. The extension of the value-added approach to vocational courses appears to be hampered by the absence of an identifiable link between prior qualifications and subsequent achievement on vocational courses. GCSE results are the only generally available information on prior qualifications and they are modestly correlated with attainment on most vocational
courses. In some cases when results from individual colleges are looked at alone the correlation is strong enough to suggest that a value-added approach could be helpful for internal monitoring of some vocational courses.

184. As vocational qualifications evolve and as quantitative evaluations are developed further, it may become possible to establish value-added evaluations of vocational courses, perhaps supporting GCSE results with other tests of aptitude. For the immediate future, publication of information on the outcomes of schools’ and colleges’ vocational courses should be confined to students’ achievements of vocational qualifications, with no adjustments for prior GCSE results. However, since there is a modest correlation between prior GCSE results and achievement on vocational courses, it would be helpful if some measure of students’ prior achievements were noted alongside vocational results. This would give potential students some indication of what they might expect to achieve given their own GCSE results.

CHANGES IN SCHOOLS’ AND COLLEGES’ PRACTICES

185. Current levels of non-completion are unacceptably high in many institutions, and rates of unsuccessful completion are also too high in some. There are wide variations in institutions’ practices for admitting students to courses and for monitoring the performance and costs of courses. Admitting a student to a post-16 full-time course is likely to incur public expenditure of about £3,000 a year or more. So it is worth spending some effort to try to ensure that the expenditure will be used to good effect. As a first move, schools and colleges need to track non-completion rates and respond when non-completion rates are high. It will be vital to ensure that appropriate alternative provision is available for those who are discouraged from enrolling on A-level or other courses to which admission is made less open.

186. Part of the action to overcome high failure rates is a sharpening of admissions advice; recruitment of students to courses should give weight to any available evidence on the likelihood of students’ success on the courses. With A-level courses, it is known that prior GCSE attainment is a good indicator of subsequent success; so prior GCSE results should inform the admissions process. In particular, students with overall GCSE attainment scores below about 32 should only be admitted to A-level courses after being made aware of their low chances of success. But information on prior attainment should not be the only admission criterion because prior GCSE results by no means determine subsequent A-level success completely. Another action to identify possible reasons for non-completion is systematically to conduct exit interviews with all those who leave courses early. This and other investigations of client satisfaction form part of the practice of a number of colleges, in many cases building on developments from the Responsive College Programme1. Boston College, Lincolnshire, is one such college and has a comprehensive programme of client follow-up.

187. Schools and colleges can use value-added statistics to advise potential students, setting such information beside more personal considerations such as individual motivation. Where internal examinations and assessments given during an A-level course can meaningfully be related

---

1 The Responsive College Programme was a co-ordinated initiative to develop approaches, techniques and strategies for college marketing. It was run from the Further Education Staff College and funded by the Training Agency of the Employment Department.
to A-level standards, results in these can be compared with expected results of students with the actual prior GCSE results of the students on the course – this is already the practice of Greenhead and Widnes Sixth Form Colleges, amongst others.

188. The data necessary to support thorough tracking of students' progress are not complicated (Exhibit 37).

Exhibit 37
ILLUSTRATIVE EXAMPLE OF STUDENT RECORDS NEEDED FOR QUANTITATIVE EVALUATION OF A BTEC COURSE
Only basic, straightforward information is needed.

Anytown College of Further Education
BTEC National Diploma Course in Business and Finance 1990/92
Student 5834 Born 11/6/73 Left 6/92

<table>
<thead>
<tr>
<th>Prior GCSE grades</th>
<th>BTEC units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English language</td>
<td>Grade</td>
</tr>
<tr>
<td>Mathematics</td>
<td>C</td>
</tr>
<tr>
<td>Biology</td>
<td>C</td>
</tr>
<tr>
<td>Sociology</td>
<td>D</td>
</tr>
<tr>
<td>Physics</td>
<td>E</td>
</tr>
<tr>
<td>Art</td>
<td>E</td>
</tr>
<tr>
<td>French</td>
<td>F</td>
</tr>
<tr>
<td>Craft, design &amp; technology</td>
<td>G</td>
</tr>
</tbody>
</table>

Award made? Yes

189. Monitoring of student progress is a recognised function of course leaders. Monitoring of costs is perhaps seen less as a course leader's responsibility. Yet without an adequate costing system related to the decisions and concerns of course leaders, institutions will find it difficult to cope in the future, because management decisions related to individual courses have significant cost consequences. Course-level costing systems have essentially two types of use. One is to support course review, pinpointing how the use of different resources determines the outturn cost of a course. The other use is to help in the appraisal of changes in provision: mounting potential new courses or altering or discontinuing existing courses following a course review. Institutions' current information about costs typically does not serve either use adequately. Costing systems
are needed which encompass all the revenue costs attributable to courses and highlight the impacts on those costs of the different parameters which determine them. Such systems need not be complicated. The only data which the approach requires are readily available (Exhibit 38).

Exhibit 38
THE KEY ELEMENTS OF A COURSE COSTING APPROACH
The only data which the approach requires are readily available.

190. Once a suitable costing system is in place in a school or college, it becomes possible to evaluate steps such as:

— merger or partial merger of small teaching groups;

— changing the number of hours for which a module or subject is taught, either in response to small group sizes or in response to larger numbers of taught hours than the course needs;

— opening up or discontinuing a particular teaching group;

— opening up or discontinuing a whole area of provision, e.g. A-level or a particular vocational area;

— altering staff complements, both teaching staff and non-teaching staff;

— varying the teaching loads of teaching staff;

— commercial letting of rooms which are not in use for teaching.

191. Where institutions gain greater influence over the acquisition and disposal of assets than they currently have, it will be important to ensure that their information systems are sensitive to the interaction between revenue, capital and course provision.

OVERSEEING THE SYSTEM

192. The need for structures outside the individual educational institutions is well recognised. For instance the duty to ensure that appropriate 16-19 education provision is available rests with the FEFCs from April 1993 as part of their duty under the 1992 Further and Higher Education
Act. In the framework currently being established for post-16 education, the key functions outside the institutions are divided between a number of bodies (Exhibit 39).

**Exhibit 39**

FOUR KEY FUNCTIONS IN OVERSEEING 16-19 EDUCATION AND THE BODIES WHICH ARE TO EXERCISE THEM

The functions are divided between a number of bodies.

INSPECTION

193. External monitoring of quality is to be divided, with OFSTED, OHMCI (Wales) and their registered inspectors working in schools and the FEFCs operating their own inspection arrangements in FE colleges and in sixth form colleges. Since many prospective and actual students will have a choice between institutions in the two sectors, it will be important for published statements about quality from the FEFCs and the schools inspectorates to be comparable if students and other clients are to be able to make best use of the information.

FUNDING

194. The issue of equitable funding treatment between institutions in the different sectors is much discussed. As well as responding to this issue, funding arrangements for the 16-19 phase need to:

- maintain access to provision for all those aged 16-18 who wish to participate in full-time education;
- support institutions’ efforts to make themselves more efficient and effective.

195. Thus funding formulae need to strike a delicate balance. Present funding arrangements in both schools and FE form part of the local management schemes for the two sectors and give a sum of additional money to an institution for every student it recruits. Funding formulae for institutions providing for post-compulsory age students need to be responsive to the problems identified in this report. And the move to national funding bodies for FE provides an opportunity for that sector to modify the 'bottoms on seats' incentives to recruit students to courses irrespective of their chances of success on those courses – the waste entailed in drop-out and failure needs to
be tackled by every means available. A move to allow and encourage LEAs to modify the way LMS funding formulae fund post-compulsory age pupils in schools would also be helpful. Modification of LMS formulae need not abandon pupil-led funding for sixth forms but would make formulae sensitive to rates of drop-out and unsuccessful course completion as well as to rates of recruitment. At the same time, funding should not precipitate the shutting down of all unsuccessful courses. If a course is unsuccessful, intervention to overcome the lack of success may be more appropriate, especially in the case of specialised courses for which there may be no local competing alternatives.

196. In drawing up proposals to alter the range of educational institutions available in an area, the FEPCs, LEAs and the FAS will not only have to respond to each other's concerns and interests. They will have to pay close attention to the decisions of institutions themselves. The intention of current reforms is that much of the impetus towards efficiency should be provided by the market freedoms which institutions will have. But there is also a potential danger of inefficiencies arising from competition between institutions. Until the new market freedoms have had a chance to take effect and until the new inspection arrangements have had a chance to monitor how these freedoms affect quality, it is not possible to say whether intervention will be needed to reduce abnormally high costs, such as those which are generally incurred by small sixth forms.

197. Exhibit 39 omits one of the vital activities outside individual institutions: impartial support to school pupils coming to the end of compulsory schooling as they choose what to do next.

'CHAMPION OF STUDENTS'

198. The Trade Union Reform and Employment Rights Bill currently before Parliament proposes a major change in responsibility for the work currently undertaken by local education authority careers services. However the careers service is organised in the future, its rôle as 'champion of students' needs to be preserved and in places extended. Individual institutions (a pupil's present school or a potential new one) could be acting against their own interests if they act impartially rather than encourage pupils to stay in their existing schools. So in particular all school pupils in their final compulsory year should receive a booklet which lists courses available to them and the institutions which offer them, as well as opportunities outside the education system (Exhibit 40, overleaf). Pupils should also have the option of at least one interview with a careers officer.

* * *

199. Implementation of the recommendations of this report, summarised in Box D overleaf, will require little investment — mainly the resources required to collect data and analyse it. Taking the necessary actions will require skill and resolve but the potential benefits of the recommendations are considerable. The value improvement opportunities to give young people more help to become better educated and trained equate to £180 million from increasing the smallest A-level
teaching group sizes plus £150 million if course success rates are increased. This will help young people to become better equipped for the worlds of employment and higher education.

Exhibit 40
EXTRACT FROM A CAREERS SERVICE BOOKLET FOR SCHOOL PUPILS AT THE END OF COMPULSORY SCHOOLING
Options in all maintained schools and colleges are shown.

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
<th>FE College</th>
<th>Sixth Form College 1</th>
<th>School D</th>
<th>School E</th>
<th>Sixth Form College 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geology</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td></td>
<td>*</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government &amp; Politics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| An asterisk indicates that the A-level subject is offered in the institution shown. Source: Fieldwork LEA.

Box D
SUMMARY OF RECOMMENDATIONS

FOR SCHOOLS AND COLLEGES
(i) Record systematically the basic data about students, including qualifications they come in with, date of leaving and qualifications they acquire during their courses (paragraphs 60 to 72).
(ii) Track the rates of successful completion, unsuccessful completion and non-completion for all courses (paragraphs 60 to 72).
(iii) Calculate the value added in qualification terms for students on A-level and GCSE courses (paragraphs 73 to 93). Compare final and initial qualification data for students on vocational courses (paragraph 97).
(iv) Use statistics on student outcomes including value added to inform the admissions process as well as to inform reviews of the teaching and organisation of courses (paragraph 117).
(v) Monitor the costs of courses and the resource decisions which determine costs (paragraphs 120 to 150).
(vi) Take action to remedy unsuccessful course outcomes (paragraph 66) and to reduce excessive costs (paragraphs 163 to 165).

FOR THE FEFCs
(i) Ensure that as far as possible published reports on the quality of courses present information in a form compatible with schools inspectorates' reports on school sixth forms (paragraph 193).
(ii) Introduce value-added evaluations into the inspection process where appropriate (paragraph 180).
(iii) Establish funding structures which retain open access to post-16 education as a whole but do not encourage indiscriminate student recruitment to courses (paragraph 195).
FOR LEAs
(i) Seek to revise LMS formulae to modify current incentives for indiscriminate retention of students in school sixth forms (paragraph 195).
(ii) Monitor costs and success rates of sixth form courses in considering the need to re-organise the provision of sixth form education in schools (paragraph 196).

FOR OFSTED AND OHMCI (WALES)
(i) Ensure that as far as possible published reports on the quality of sixth form courses present information in a form compatible with FEFC reports on colleges (paragraph 193).
(ii) Introduce value-added evaluations into the inspection process where appropriate (paragraph 180).

FOR CENTRAL GOVERNMENT
(i) Modify rules for school funding formulae to allow LEAs to reduce or modify the current incentive for indiscriminate sixth form retention and recruitment (paragraph 195).
(ii) Alter the requirements on publication of school and college information to include information on rates of non-completion of courses (paragraph 174).
(iii) Ensure that the new framework for the careers service preserves and enhances its rôle as champion of students (paragraphs 109 to 118).
(iv) Commission calibration of formulae relating A-level achievement to prior GCSE achievement based on a nationally representative sample of students (paragraph 177).
Appendix 1

THE SCORING SYSTEM USED IN VALUE-ADDED CALCULATIONS

Value-added calculations require:

— a method for expressing each student's initial qualification results as a score;

— a method for expressing as a score the final qualification results of each student who completed the course;

— a formula for linking the two.

The value-added calculations in this report do not take account of students who do not complete courses.

Each of a student's prior GCSE subject results is converted to a score using the formula:

<table>
<thead>
<tr>
<th>GCSE Grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

The student's overall GCSE score is calculated by taking the sum of grade scores in English, mathematics and the best five other grades (or all other grades, if fewer than five other subjects were attempted). Where any subject has been taken at more than one sitting, only the student's best grade in that subject is used. This formula is intended to give due weight to a range of achievement without putting too high a premium on the number of subjects taken. In practice it gives values close to those from other scoring systems such as the average score over all subjects entered.

For scoring A level subject results, the UCCA scheme is used:

<table>
<thead>
<tr>
<th>A-level grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>N</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For AS subject results, which equate to half an A-level, the score for each grade is halved i.e. five points for an A etc. For the analyses, A-levels and AS in General Studies are not included because these examinations do not reflect attainment reached by following a specific course of preparation similar to those for particular subjects. Since not all students attempt General Studies examinations, these results are excluded. This is done to establish a level playing field and not in any way to question the value of General Studies examinations for other purposes. A student's overall A-level score is derived by adding together scores from all A-level and AS subject results but excluding any duplicated subjects. This formula is the same as that set out for the reporting
of school pupils' achievements to parents in DFE Circular 14/92 and in Welsh Office Circular 27/92, except that these Circulars do not exclude General Studies A-level results.

The link between initial and final scores is simple for post-16 GCSE courses. The value added for an individual student is the difference between the GCSE score before embarking on the course and the GCSE score at the end of the course.

For A-level/AS courses, the link is less direct than for GCSE courses. The value-added assessment consists of comparison of the final A-level attainment of students with the attainment normally expected for students starting with their levels of prior GCSE attainment. Formulae for expressing A-level scores to be expected from any given GCSE score are established using the procedure of statistical linear regression.

From the fieldwork data the formula derived for a student's overall A-level score is

\[
\text{Expected A-level score} = (1.05 \times \text{GCSE score}) - 29.46.
\]

Since there is evidence that different A-level subjects differ in their degrees of difficulty, this formula should not be used in institutions where the range of subjects is weighted towards or away from particular subjects or groups of subjects. Similar formulae have also been derived for a number of individual A-level subjects. The derived regression line can be compared graphically with individual students' results (Exhibit 12 earlier). Expressed in terms of a graph, the course's score is the average vertical distance between the points on the graph and the 'general standard' line, with points above the line contributing positive values to the average and points below the line contributing negative values.
Appendix 2

AUDIT COMMISSION/HMI DISCUSSION PAPER: CAN VALUE-ADDED INDICATORS BE APPLIED TO VOCATIONAL COURSES? – SUMMARIES OF THE PAPER AND OF RESPONSES

The paper took as its starting points three requirements which are counterparts of those quoted in paragraph 76 of this report:

— a method for expressing as a score each student’s certified results prior to starting on their courses;

— a similar scoring method for expressing final attainment as a score;

— a formula for expressing the final attainment score to be expected from a student with any given prior score.

SCORING PRIOR QUALIFICATIONS

For the majority of students entering vocational education at 16 or 17 the main previous qualification is GCSE, in which 72% of school leavers have attempted at least seven subjects. GCSE is the only generally available statement of students’ prior attainment. Some students beginning vocational courses have received other kinds of certificates as well as or instead of GCSE, but for different reasons these were not used in the discussion paper. The scoring system used in the paper for GCSE was the same as that described in this report.

SCORING FINAL QUALIFICATIONS

Certificated achievement at the end of a full-time vocational course may consist of several units of a single award, as in the case of the BTEC diplomas. Alternatively it may consist of a package of several vocational qualifications.

The paper put forward a formula for quantifying achievement on a vocational course in which there are several certified results, either results within a qualification or results for whole qualifications. If there are N such results:

\[
Score = \frac{4d + 3m + 2p + r}{N}
\]

where

d is the number of results at distinction grade

m is the number of results at merit or credit grade

p is the number of results at pass grade

r is the number of units for which the student has been referred (a result below pass, usually near to pass, for which a chance to retake the module is given).

For BTEC diploma courses the formula had to be modified because BTEC assigns a value to each module or unit of a course. A condition for award of the diploma is success in a number of
units with a specified total unit value. So for BTEC results, N is the total unit value for the diploma as a whole; while d, m, p and r are the sums of the grades weighted appropriately for unit values.

Dividing by N puts the score on a common scale so that student scores on similar courses with different numbers of modules can be directly compared.

This formula can only differentiate clearly between courses if the students' results are differentiated. For a course where the results are not graded, the formula differentiates less finely than if the results are graded. On a course where there is only one result instead of results in separate modules, and where that result is just pass or fail, the formula can only reflect a pass rate for the course.

A formula which could permit the comparison of different types of course is not at present feasible because:

— courses on which distinction, merit and referred grades are available are not comparable with those on which some or all units are graded only pass or fail;

— locally designed courses in the same vocational field may aim at a different number of qualifications (Exhibit 19 earlier).

LINKING PRIOR AND FINAL QUALIFICATIONS

Once scoring formulae have been established for both prior and final qualifications, it is possible to compare them on a student-by-student basis. Using that link to express the final attainment score to be expected from a student with any given prior score requires that there be some correlation between the two. In a number of analyses based on fieldwork data the correlations found of initial GCSE scores with final vocational attainment were weak. However, some of the correlations were stronger when the analysis was confined to individual colleges. This suggests that for some courses, comparison of prior and final attainment may be more relevant to internal than to external monitoring.

DISCUSSION

The paper put forward some possible explanations of the weakness of the relationship between prior and final attainment:

— the attainments and attitudes reflected in GCSE results are not relevant to the objectives of the vocational course;

— the GCSE results may not represent well the abilities and potential of the students concerned;

— the vocational course for some reason has not built upon the differing abilities and attainments of the students;

— the course assessments do not discriminate sufficiently between the differences in attainment;

— procedures for assessing student attainment on vocational courses are not sufficiently uniform and reliable;

— the range of attainment from which the course recruits is too narrow to have much bearing on the course outcomes.
The paper did not attempt to establish which, if any, of the above explanations are valid. It invited comments on the issues, concluding with four key questions:

**Question 1.**

What quantitative indicators should be used in the evaluation of vocational courses?

**Question 2.**

What is the relevance of the 'value-added' concept to quantitative assessment of the effectiveness of vocational courses?

**Question 3.**

Can students' attainment on a vocational course be summarised as a single score? Is the formula proposed in the 'Scoring Final Qualifications' section suitable for this purpose? How could it be adapted to reflect current diversity and future developments in vocational courses?

**Question 4.**

How should students' non-completion of courses be treated in formulae for measuring the effectiveness of courses?

**RESPONSES TO THE PAPER**

Forty-six bodies and individuals responded in writing to the discussion paper, and the team discussed the issues at meetings with a number of other groups.

There was general agreement that the issues raised in the paper were complex but the conclusions drawn from this complexity varied.

Most respondents expressed the view that value-added evaluations such as those described for A-level courses in chapter 2 are not at present feasible for vocational courses, and nobody put the contrary view. Some denied that such evaluations could ever be carried out. The case for this view was that the extreme diversity of the aims of vocational courses ensures that no single score can adequately represent outcomes of courses. Others argued that current developments in qualifications are likely to make outcomes more comparable and thus make value-added evaluations more tractable.

Several respondents highlighted course outcomes which are not captured by externally validated qualifications, including student destinations, student satisfaction, uncertificated outcomes and internally certificated qualifications.

The unsuitability of GCSE as a measure of students' starting points was widely referred to.

Most of those who referred to the issue of grading of vocational results said that since ungraded vocational qualifications are gaining in importance, evaluations of course outcomes should not depend on qualification results being graded.
Appendix 3

OUTLINE OF THE STUDY TEAM'S COSTING PROCEDURE

GENERAL INTRODUCTION

A common approach to costing an operating unit of any kind (be it a specific service, an industrial production unit or an educational institution) is to seek to estimate the costs of all that the unit does. Such an approach is particularly useful for tracing the use of resources within the unit. Applying it for A-level teaching in an institution would involve estimates of average costs over the whole of the institution's A-level teaching, based on average group sizes in all A-level subject groups and average taught hours for all A-level subjects.

The procedure used for the Audit Commission/HMI study works differently. It refers to a sample of activities and estimates the cost of these activities in different educational institutions. This procedure is analogous to assessing different shops' prices by focusing on a particular basket of items and noting the prices in each shop of the items in the basket.

The costing procedure was applied to four courses. In costing a particular course in a particular school or college, the procedure starts from a course timetable for a typical week. It estimates the cost of the course by extrapolating costs of that timetable to the whole academic year. The procedure assigns a share of all the institution’s costs to the timetable and is thus a full costing of the course.

The procedure can use either budget or retrospective cost statements. Once the choice is made, it must be adhered to consistently throughout the procedure. The study team used budget figures in all its work because the corresponding historical timetable data were not generally available to support an analysis based on historical cost figures.

THE STEPS OF THE COSTING PROCEDURE

The procedure divides the week's timetable into 'timetable units' and attaches costs to each of the units. A timetable unit is a time when the resources in use are constant – the student group must be constant and the teaching staff must be constant throughout. Thus a timetable unit could be one lesson or workshop session. Alternatively it could be made up of several lessons or workshop sessions at different times of the week when the same group of students work together with the same teacher (or occasionally with the same group of teachers).

The 'teacher hours per student' for a timetable unit are calculated as:

\[
\text{Length of timetable unit in hours} \times 36 \div \text{Number of students in the teaching group}
\]

The ‘teacher hours per student’ represent the average number of hours of teacher attention assigned to each student over the year in this timetable unit. The figure 36 is a reasonable estimate of the number of weeks in the year for which normal timetables could be expected to be run. The
number of students in the teaching group should be the number of students in that group on 1 November of the year to which the costing applies, to maintain consistency with any analysis of student non-completion.

To arrive at a cost for the teacher hours involved in the timetable unit, an estimate is needed of the cost of one hour of the time of the teacher or teachers involved in the timetable unit.

The procedure splits this cost into a *teaching element* and a *non-teaching element*.

The first step in estimating the *teaching element* is to estimate a share of the relevant teacher’s employment cost per hour:

\[
\text{Salary + oncost} \\
36 \times 21
\]

36 is the assumed number of weeks per year – and matches the 36 in the teacher hours calculation; 21 is the assumed maximum number of class contact hours per week for a teacher. The figure is written into the conditions of employment of FE lecturers and is a not unreasonable reflection of schools’ practice.

The second step is to uplift this figure to allow for the non-teaching time of teaching staff. The uplift factor used is not personal to the teacher involved in the teaching unit being costed – it would be misleading to portray a teaching unit as particularly expensive because it is taught by a member of staff who has an especially large proportion of non-teaching time. The uplift factor used is therefore:

\[
\frac{\text{potential number of teaching hours for the whole school or college}}{\text{actual number of teaching hours for the whole school or college}}
\]

The potential number of teaching hours is calculated as the full-time equivalent of the whole teaching staff multiplied by 36 and 21. This is divided by the actual number of teaching hours timetabled for all courses of all kinds throughout the year in the school or college. In the case of a school or sixth form college, it is often sufficient to calculate both numerator and denominator for a week instead of for a year. In that case the factor 36 is omitted from the numerator and the denominator is computed for a week only.

The *non-teaching element* of the cost of a taught hour is treated as comprising:

- the cost of support staff
- the cost of consumables and equipment
- the cost of maintaining the premises
- administration costs
- other costs.

A figure for each of these sub-elements is taken from the institution’s statement of the annual cost for these non-teaching items. Each figure is then divided by the actual number of teaching hours on the timetable in a year. The calculation can be done once for the whole institution or
it can be done separately for separate departments of the institution. For example, a departmental calculation of the cost of support staff would take the institution's statement of the cost of support staff for the relevant department and divide it by the department's actual number of teaching hours on the timetable in a year. The facility to do a departmental calculation depends on the availability of a departmental breakdown of each of these cost headings and a departmental breakdown of actual teaching hours. The principles of this allocation of non-teaching costs can thus be maintained however coarse or fine the available data are. If cost figures were recorded more finely - e.g. to course level – the apportionment could be done correspondingly finely without altering the principles of the apportionment.

The cost per hour for a timetable unit is the sum of the teaching and non-teaching elements. The cost of the timetable unit is derived by multiplying the cost per hour by the number of teacher hours per student entailed by the timetable unit.

The cost of the whole course is the sum of the costs of all the timetable units of the course.

NOTES

(i) Since potentially a student's programme of study may be unique, a single application of the procedure may fully cost only the provision for that one student, or it may be valid for a group of students if several students are together throughout the timetabled week. Even a costing which is fully valid only for one student includes figures on the constituent parts of his or her course which are valid for all the other students participating in those constituent parts. If the groups in which the sample students study are not manifestly unrepresentative, figures from their courses will give good estimates of the costs of other students' courses. A complementary approach would be to determine the average cost per student taking an A-level subject, of taking a GCSE subject, of attending a tutor group, and of participation in supplementary studies. The position with vocational courses is frequently simpler, but not much simpler where there are several parallel options within a vocational course.

(ii) The procedure includes flexibility to respond to the fineness or coarseness of the available cost data.

(iii) The procedure can be partially applied, to investigate the cost of particular subjects or options. All that is required is to cost the relevant timetable units.

(iv) The teacher input to such activities as projects, assignments and work placements is of a different nature from that to class teaching but it can be costed in a similar way because the two key types of data can be estimated: the duration of the teacher's time commitment and the number of students to whom that commitment is directed.

(v) For some non-teaching costs, the apportionment to teacher hours as used in the procedure may not be ideal. For libraries or for open learning facilities, a more logical apportionment might be to students. The choice to apportion to teacher hours was made because too few of the institutions visited had their non-teaching costs recorded in a way which would permit a split between those most appropriate to a per student apportionment and those where a per teaching hour apportionment was more rational.
(vi) Most institutions in the study were maintained by LEAs, which incurred costs in addition to those incurred in the institutions (e.g., a proportion of the costs of maintaining the institutions' premises and grounds). These costs were excluded from the calculations in the study because apportionment of these costs to institutions was not yet rigorous enough or consistent enough to make comparisons meaningful.

(vii) The costs calculated in the study exclude charges for the use of assets (premises and equipment). Reliable estimation of such charges would require better valuation of assets than was generally available. Hitherto it has not been worthwhile for institutions to trouble themselves about capital assets because they have so little influence over capital expenditure (the lack of data on assets has been partially remedied by the recent survey on behalf of the FEFC of equipment in FE colleges). Reliable estimation of charges for the use of assets would also require a robust basis for the attribution to courses of usage of assets. None of the study institutions had done this, and it certainly would be extremely cumbersome to try to record fully who was using which capital assets within an institution.

(viii) Where London allowance is payable to staff in the institution, an estimate of the allowance has been deducted from all relevant costs, to aid comparability with institutions outside the London area.
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