



OFFICE FOR STANDARDS
IN EDUCATION

Inspecting post-16 construction with guidance on self-evaluation

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The post-16 subject guidance published in 2001 comprised: art and design; business education; classics; design and technology; drama and theatre studies; engineering and manufacturing; English; geography; government and politics; health and social care; history; information and communication technology; law; mathematics; media education; modern foreign languages; music; physical education; religious studies; science; sociology.

Further booklets published in 2002: agriculture; basic skills in literacy and numeracy; construction; dance; English as a second or other language; hairdressing and beauty therapy; hospitality and catering; leisure and tourism; psychology.

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Introduction

This booklet aims to help inspectors and staff in schools and colleges to evaluate standards and quality in construction for students post-16. It complements the *Handbook for Inspecting Secondary Schools* (1999), the supplement *Inspecting School Sixth Forms* (2001) and the *Handbook for Inspecting Colleges* (May 2002).

This guidance concentrates on issues specific to construction. General guidance is in the *Handbooks*. Use both to get a complete picture of the inspection or evaluation process.

This booklet focuses on evaluating standards and achievement, teaching and learning, and other factors that affect what is achieved. It outlines how to use students' work and question them, the subject-specific points to look for in lessons, and how to draw evaluations together to form a coherent view of the subject.

Examples are provided of evidence and evaluations from college inspections, with commentaries to give further explanation. These examples are included without any reference to context, and will not necessarily illustrate all the features that inspectors will need to consider. The booklets in the series show different ways of recording and reporting evidence and findings; they do not prescribe or endorse any particular method or approach.

On inspections of colleges and school sixth forms, not all courses will be inspected in detail. Inspectors and senior staff in schools and colleges may need to evaluate several subjects and refer to more than one booklet. You can download any of the subject guidance booklets from OFSTED's web site (www.ofsted.gov.uk).

Our Inspection Helpline team, on 020 7421 6680 for schools and 020 7421 6703 for colleges, will respond to your questions. Alternatively, you can e-mail collegeinspection@ofsted.gov.uk or schoolinspection@ofsted.gov.uk.

OFSTED's remit for this sector is the inspection of education for students aged 16–19, other than work-based education. In schools, this is the sixth-form provision. In colleges, the 16–19 age group will not be so clearly identifiable; classes are likely to include older students and, in some cases, they will have a majority of older students. In practice, inspectors and college staff will evaluate the standards and quality in these classes regardless of the age of the students.

This booklet concentrates on the most commonly found courses in or related to construction for students 16–19. However, the principles illustrated in this guidance can be applied more widely.

Those courses most likely to be encountered can be grouped into three main categories:

- ┆ general vocational courses in construction, leading to foundation, or intermediate level General National Vocational Qualifications (GNVQs) or Advanced Vocational Certificate of Education (AVCE);
- ┆ occupational courses for technician students including national diploma and certificate courses in construction, civil engineering and building services engineering;
- ┆ occupational courses for craft students leading to National Vocational Qualifications (NVQs) or other craft qualifications; a wide range of crafts may be encountered including bricklaying, carpentry and joinery, painting and decorating, plumbing, and wood machining.

In school sixth forms, it is only the general vocational courses which are likely to be encountered, but in colleges a wide range of occupational courses is taught.

Students aged 16 will normally have taken General Certificate of Secondary Education (GCSE) design and technology or GNVQ Part One courses. These may have introduced them to computer-aided design and manufacture (CAD/CAM) and manual craft techniques. They should have already learnt about the design and manufacture of products and developed skills in the use of tools and equipment.

Common requirements

All inspectors share the responsibility for determining whether a school or college is effective for all its students, whatever their educational needs or personal circumstances. As an inspector, ensure that you have a good understanding of the key characteristics of the institution and its students. Evaluate the achievement of different groups of students and judge how effectively their needs and aspirations are met by any initiatives or courses aimed specifically at these groups of students. Take account of recruitment patterns, retention rates and attendance patterns for programmes and courses for different groups of students. Consider the individual goals and targets set for students within different groups and the progress they make towards meeting them.

You should be aware of the responsibilities and duties of schools and colleges regarding equal opportunities, in particular those defined in the Sex Discrimination Act 1975, the Race Relations Act 1976 and the Race Relations (Amendment) Act 2000, and the Special Educational Needs and Disability Act 2001. These Acts and related codes of practice underpin national policies on inclusion, on raising achievement and on the important role schools and colleges have in fostering better personal, community and race relations, and in addressing and preventing racism.

As well as being thoroughly familiar with subject-specific requirements, be alert to the unique contribution that each subject makes to the wider educational development of students. Assess how well the curriculum and teaching in construction enable all students to develop key skills, and how successfully the subject contributes to the students' personal, social, health and citizenship education, and to their spiritual, moral, social and cultural development. Judge how effectively the subject helps prepare students aged 16–19 for adult life in a culturally and ethnically diverse society.

1 Standards and achievement

1.1 Evaluating standards and achievement

From the previous inspection report, find out what you can about standards and achievements at that time. This will give a point of comparison with the latest position, but do not forget that there is a trail of performance data, year by year. Analyse and interpret the performance data available for students who have recently completed the course(s). Draw on the school's *Performance and Assessment* (PANDA) report or, in the case of a college, the *College Performance Report*. Also analyse the most recent results provided by the school or college and any value-added information available. When numbers are small, exercise caution in making comparisons with national data or, for example, evaluating trends. For further guidance on interpreting performance data and analysing value added, refer to *Inspecting School Sixth Forms*, the *Handbook for Inspecting Colleges* and the *National Summary Data report for Secondary Schools*.

Where you can, form a view about the standards achieved by different groups of students. For example, there may be data which enable you to compare how male and female students or different ethnic groups are doing, or how well 16–19-year-old students achieve in relation to older students.

Make full use of other information which has a bearing on standards and achievement, including success in completing courses, targets and their achievement, and other measures of success.

You should interpret, in particular:

- | trends in results;
- | comparisons with other subjects and courses;
- | distributions of grades, particularly the occurrence of high grades;
- | value-added information;
- | the relative performance of male and female students;
- | the performance of minorities and different ethnic groups;
- | trends in the popularity of courses;
- | drop-out or retention rates;
- | student destinations, where data are available.

On the basis of the performance data and other pre-inspection evidence, form hypotheses about the standards achieved, whether they are as high as they should be, and possible explanations. Follow up your hypotheses through observation and analysis of students' work and talking with them. Direct inspection evidence tells you about the standards at which the current students are working, and whether they are being sufficiently stretched to achieve as well as they should. If the current standards are at odds with what the performance data suggest, you must find out why and explain the differences carefully.

In your observations, be alert to any differences in the standards of work of different groups of students.

As you observe students in construction lessons, look at their work and talk with them, you should concentrate on the extent to which, in the context of the course they are studying, students:

- | understand and comply with relevant European, national and local requirements, standards and regulations;
- | understand and comply with the requirements of health and safety legislation;
- | correctly interpret the designer's or client's requirements, as conveyed in drawings, specifications, contracts, or verbal instructions;
- | select appropriate materials, tools and equipment;
- | effectively use tools, equipment and materials, working precisely and accurately to set up the site, produce and/or assemble components, install components, and test installations;
- | apply the knowledge and skills acquired in earlier work to help them meet increasingly demanding craft activities in new situations;
- | demonstrate and apply their knowledge and understanding of construction principles, materials and

components, and how quality issues affect production;

- | select and use a range of approaches and materials when designing increasingly complex structures;
- | undertake practical and project work which requires interpreting drawings and other information, planning, measurement, testing, problem solving and the ability to draw conclusions;
- | use information and communication technology (ICT) to design structures and components, to plan work scheduling and to present information to enhance and improve the quality of their work;
- | in their assignment work, show awareness of local and national issues affecting the industry, such as the environment and the use of scarce resources;
- | take increasing responsibility for their own work.

1.2 Analysis of students' work

A detailed analysis of students' work, including portfolios, with the information drawn from the pre-inspection analysis, provides an important source of evidence to judge whether the students are achieving well.

When observing practical lessons, it is particularly useful to examine students' current and completed work to see how they develop their practical skills. Ask students to explain the work they are doing, their previous work and, importantly, check their levels of understanding of the subject.

Practical work previously produced by students and their portfolios are useful sources of evidence for inspectors to use when making judgements about standards and achievement. They often indicate how students develop their practical skills over time. Some portfolios contain large amounts of material, although much may be merely copies of handouts or other standard course documentation. You should look at the work of at least three students – of above average, average, and below average attainment – for one or two mandatory units in each of the main qualifications being studied. You should try to see if the work shows that students have a clear understanding of construction principles. It is also important to find out whether they are able to solve problems and to improve the quality of their work over time, as their knowledge and understanding increase.

However, most colleges cannot afford the space to keep students' past work. Instead, in some colleges, inspectors may be shown practical work previously undertaken by craft students, such as the maintenance or adaptations to the college premises. These examples can provide good evidence of the standards of students' work, but it is important to establish the backgrounds of the students who did the work, to ascertain at what stage of their course it was undertaken, and if possible talk to them.

Example 1: evidence from analysing work of plumbing students in an FE college

Portfolios of plumbing students at NVQ level 2, covering above-ground sanitation systems

Higher-attaining student (1)

The student's portfolio shows she has used a wide range of information sources, including the Internet, manufacturers' catalogues, samples, textbooks, magazines, and a site visit. The portfolio is well presented using ICT for text and layout drawings. The student has referred to her own work experience with a local plumber and practical lessons in the college to help explain how to choose and install different systems. Her evidence includes photographs of sanitary fittings she helped to install. The student's work shows that she has a good understanding of the topic, for example, in the choice of economical but aesthetically pleasing appliances to suit a domestic property. Attainment is well above average, which matches the student's ability, representing satisfactory achievement.

Below-average-attaining student (2)

The student's portfolio is well presented, with some good use of ICT. However, he has used a limited range of sources of information and relies too much on handouts provided by the teacher. There are few examples of work undertaken while he was on work experience or in practical lessons. The student has struggled to understand some of the more technical aspects of the topic. For example, pipe sizing is sometimes inaccurate. The specification of fixtures and fittings is not always complete and individual comments are missed out. The sketched layouts are clearly presented, but the design solutions do not fully meet the criteria. Attainment is below average, and achievement is unsatisfactory, being below the student's capabilities.

Below-average-attaining student (3)

Several parts of this student's portfolio are incomplete. There has been very little use of ICT. Reference materials are mostly handouts supplied by the teacher. The student has not considered the most efficient layout for pipework. Some materials specified are not suitable for the situations where they are to be used. Specifications are often incomplete. The layout drawings are poorly produced and contain some serious errors. The design solution does not meet the regulations for the particular installation. There is no reference to work experience or practical lessons undertaken at college. Attainment is below average. This student is underachieving and shows limited commitment to the requirements of the course.

[Overall attainment below average (5)]**Commentary**

The analysis of these three students' work indicates a wide range of attainment. Student 1 should achieve the NVQ unit. Student 2 needs to improve the quality of his work if he is to be certain of achieving the unit. The third student is working well below the level required and is unlikely to pass the unit. If the work of these three students is representative of the group as a whole, then the overall attainment is below average. Too little progress has been made, indicating that achievement is unsatisfactory.

Example 2: evidence from analysing work of full-time AVCE students in an FE college**Portfolios include a wide range of project planning tasks covering the construction of a small estate of detached houses****Higher-attaining student (1)**

The student has demonstrated a good understanding of a range of different planning tools and techniques. The quality of the planning work is very good. For example, the need to ensure protection to adjoining properties and existing trees is emphasised. The student has used ICT carefully to analyse the effect of using different permutations of labour, plant and equipment to undertake the construction work. The portfolio shows that the student's knowledge and understanding of project planning is well above average. He is given very constructive feedback on his work and how it could be further improved. The student may achieve a distinction grade for the unit. Attainment is well above average.

Average-attaining student (2)

The student has used ICT to analyse the effects of varying the amounts of labour, plant and equipment used. However, he does not always use realistic durations for practical activities. For example, the rate of construction of brickwork is much greater than that of fixing roofs, and therefore is not a fully economic solution; labour is not always used efficiently, and there are times when there is no work for individual craft gangs. The portfolio contains a logical sequence for the construction of the houses. Feedback from the teacher is detailed, and provides the student with clear indication of how he could improve the quality of his work. The student has made satisfactory progress in the unit and should achieve a pass. Attainment is average.

Lower-attaining student (3)

The student has completed all the assignments but, despite some evidence of hard work, his solutions show that he has found it difficult to produce a realistic programme of works. For example, there is insufficient consideration of how adjoining properties and existing trees are to be protected. The sequencing of trades is not always correct; some second fix is planned before the first fix is completed. The use of labour is often inefficient. The phasing of completion of individual properties is not carefully considered and adjoining properties are at very different stages of construction. Attainment is below average because, although the student has understood how to use the planning techniques, he has not been able to suggest realistic solutions. He may not pass the unit, in view of his unsatisfactory progress.

[Overall attainment average (4)]

Commentary

All three of the students show a good understanding of project planning techniques, but only two are able to apply them successfully. If this range of work is typical for the whole group then the overall attainment is average, and achievement is likely to be satisfactory overall.

1.3 Talking with students

It is very useful to talk to students about their current and past work. Practical lessons often provide good opportunities to talk to individual students. For example, you can ask them to explain the techniques they are using to produce joinery items or hang wallpaper. In some lessons, you can ask the students to show you their portfolios and discuss the work they contain. In some group activities, you can talk to small groups of students about their current work. It is important to check that students understand the theory behind their practical work and that they can undertake their practical activities safely and to the required standard.

Example 3: evidence from a discussion with six NVQ level 2 bricklaying students in an FE college, at the start of their second year; the majority are studying full time

The students are working individually in the college workshop on a range of brickwork tasks, including constructing cavity walls with openings and fire surrounds. They are using detailed workshop drawings. Work areas are clean and they are using tools and personal protective equipment correctly. For example, goggles are worn when cutting bricks. Alongside the workshop is a learning resource area where students keep their portfolios. The portfolios are neatly presented and show that the students have made use of textbooks, handouts from teachers, manufacturers' catalogues and videos to support their written work.

During discussion, students are keen to talk about their practical work. They are able to explain clearly the advantages of a cavity wall over a solid wall, to list the range of checks which should be made during its construction and to discuss in detail the possible causes of faults. For example, they know the tolerances allowed for the gauge, line and level and the importance of spacing wall ties correctly at openings. Their knowledge and understanding of different types of walling materials are very good. They confirm that materials and equipment are readily to hand and that the teacher strictly enforces the health and safety procedures. They would prefer to spend most of their time in the workshops but realise that they need to understand the theoretical aspects of their craft.

The standard of their work and the progress they have made since starting the course are very good. Most are very enthusiastic and pleased with their practical work. As almost all students entered the college with few qualifications, their achievement is very good.

[Attainment well above average (2)]

Commentary

These students are very well motivated. They are knowledgeable about the reasons for using cavity wall construction, the routine checks they have to undertake during their practical work, and the possible causes of defects in this type of walling. The discussion also provides good evidence about the suitability and availability of resources in the department and the emphasis placed on health and safety by teachers.

Example 4: evidence from a discussion with three second year construction AVCE students in an FE college; they all started the course with at least 4 GCSE grades A-C, the usual minimum requirement

Project: 'To design a kitchen extension to a small detached house'

All three students are keen to discuss their work. They have found the exercise interesting and have produced good quality sketches in their notebooks. Two are using CAD to produce their final drawings. However, in discussion only one student gives answers that show that he understands fully the principles governing the layout of a kitchen and that he could convince a client of the merits of his design. This student is developing some interesting ideas concerning

possible layouts and sizes of units and appliances. The other two students are not able to explain how their solutions fully meet the brief. One student has difficulty in giving reasons for the range and size of kitchen units and appliances that he has chosen, and the other student cannot justify how her proposed layout satisfies the demands of the house owner.

They explain that the teacher only provided a verbal brief. It appears that the students have received little guidance from the teacher about the standard of work required and the scope of the exercise. The teacher does not share an assessment plan with the students before they start their work.

[Attainment below average (5)]

Commentary

The standard of these students' work, including research, design and developing overall solutions, is below that to be expected at this stage. As all had more than met the minimum entry requirement of the course, achievement is poor. The discussion also highlights weaknesses in the teaching of the unit. The inspector needs to check the department's policy on the use of assignment briefs and assessment plans.

1.4 Lesson observation

Lessons may be observed in a classroom, workshop, laboratory or around the college campus. They can provide good evidence on standards and achievement. Lessons may be structured as a whole-group activity, individual work, tutorial, seminar, or open learning. It is important that the sample reflects the range of construction craft and technician courses offered and that both practical and theory lessons are covered. There may well be differences, for example, in the attainment of students studying the same craft qualification, but through different modes of attendance.

Example 5: evidence from a practical lesson in a year 1 NVQ level 2 painting and decorating class at an FE college; the students are a mixed group of mainly full-time 16–19 year olds, although there are a few adults on New Deal, modern apprentices, and two employed in the industry, attending on day release: in total 13 students are present

The standard of work produced by the majority of students is much better than would be expected for this stage of the course. The students have applied standard wallpaper to non-complex surface areas. Most demonstrate high levels of skill. They use tools and equipment appropriately. All wear overalls and comply with the safety requirements. The paperhanging of most students is of good quality, and the best is excellent. Most students have carefully prepared the surfaces before paper hanging. Almost all are able to explain the assessment criteria which should be met for successful completion of the exercise. When individual students have finished their practical tasks, they use the learning resource area adjacent to the workshop to complete their portfolios. They ask their teacher for advice when necessary and refer to trade literature and samples of materials that are readily available.

[Attainment well above average (2)]

Commentary

Achievement looks to be very good, since attainment on entry to the course was relatively modest for all of the students. They are generating consistently good standards of practical work and there is ample evidence of above average attainment. The students display very good technical knowledge and practical skills, their written work is of a particularly good standard, and they know and understand how to use tools and equipment correctly. All work is undertaken in a safe working manner.

Example 6: evidence from a Business and Technology Education Council (BTEC) National Certificate/Diploma lesson in an FE college; full-time students studying for the national diploma and part-time students studying for the national certificate: 12 present

Unit: 'Science and materials'

All students have at least 5 GCSEs at grade C or better, most have several GCSEs at grade A or B. The students work in six small groups, conducting a series of experiments to measure the strengths of different concrete mixes. Most can explain how to use slump test, compacting factor and compression testing equipment. Students in three of the groups carefully measure the quantity of each constituent of the mix and record the test results. These students correctly interpret the results in graphical form and are able to explain clearly what happens if the mix is changed. Students in the other three groups take less care in conducting the experiments. Their results are inaccurate and the graphs they produce do not enable them to explain the effects of changing the proportions of the mix.

[Attainment below average (5)]

Commentary

Most students know how to use testing equipment. However, only half can competently undertake a range of practical tests to measure the effects of changing the ratios of the constituents in a concrete mix and the size/type of aggregate. The others gain little benefit from the lesson. Attainment is therefore below average. Given their creditable qualifications on entry to the courses, this appears to represent poor achievement.

2 Teaching and learning

2.1 Evaluating teaching and learning

Interpret the *Handbook* criteria with specific reference to construction. On all courses, you should look for the characteristics of effective teaching and learning. Learning practical skills is an essential element of most construction courses. Inspectors will observe the teaching of practical skills in workshops, learning resource centres, laboratories, design offices, external project areas and public areas. You may find it useful to observe the start and end of a practical lesson to help you assess students' progress.

Particular features you would hope to see in the teaching of construction are:

- | high quality demonstrations by the teacher which help students to learn an appropriate range of skills and techniques (*subject knowledge, methodology*);
- | emphasis on safe working practices that ensure students learn to maintain a safe working environment (*expectations, methodology, management*);
- | the teacher's own careful use of technical language which leads students to use the correct terms for their particular craft or specialism (*subject knowledge, expectations*);
- | the use of challenging questions and exercises to check students' understanding and to develop their ability to think and solve technical problems (*challenge, expectations, methodology, assessment*);
- | teachers' appropriate use of learning materials – for example, overhead projector (OHP) slides, videos and handouts, manufacturers' catalogues and leaflets, technical standards documents – and references to other learning resources which enhance students' learning (*methodology, resources*);
- | the use of good quality industrial and professional links to help students develop a good understanding of the relevance of their work and of the standards expected in the work place (*methodology, resources, expectations*);
- | a mix of teaching approaches (whole-class teaching, small-group work, individual work, site visits, practical work and the development of theory) – making effective use of time and leading to learning by arousing the students' interest and motivating them to work at a good pace (*planning, methodology, use of time, pace of work, challenge, pace of learning*).

Particular features you would hope to see when evaluating students' learning in construction are:

- | students taking responsibility for improving their levels of skill in the use of tools and materials, working safely and maintaining safe working environments (*students' responsibility for their learning*);
- | students evaluating the quality of their work against design specifications and assessment criteria (*subject knowledge*);
- | students taking responsibility for producing creative solutions to design problems, using ICT appropriately (*students' responsibility for their learning, use of resources*);
- | students using industrial links to help them understand the relevance of their work and of the standards expected in the work place (*acquiring understanding and skills, use of resources*);
- | students extending their breadth of knowledge and practical skills through undertaking live project work and taking part in competitions (*acquiring understanding and skills, self-reliance*).

Consider with particular care teaching which may initially appear effective, but which lacks the rigour, depth, insights and the command of good subject teaching.

Examples might be teaching in which:

- | specific technical skills and techniques are successfully taught but students are not encouraged to understand the reasons why they are used or the use of alternatives (*methodology, expectations*);
- | practical or project work initially appears useful but is not appropriate for the level of the student or is too repetitive and time-consuming (*methodology, expectations*);
- | students are encouraged to use ICT equipment without sufficient guidance about its usefulness – for example, to produce a portfolio which only includes source materials provided by the teacher, with which

students do little to develop their understanding and research skills (*use of resources, methodology*); marking of students' work is infrequent or only done at the ends of assignments, and there is insufficient comment on students' work to help them improve (*assessment*).

2.2 Lesson observation

Example 7: evidence from an NVQ level 2 brickwork class in an FE college; a mixed group of students of various ages (14 full-time students aged 16–17, and five experienced mature part-time students); a full-time bricklaying teacher

Unit: 'Erect and dismantle access platforms'

Because the group includes mature students who work in the industry, the teacher first checks to see which students have used access platforms. He then explains the safety considerations when using scaffolding, drawing upon his own experiences in the industry. The teacher's subject knowledge is good. To illustrate the topic, he has articles from trade magazines, although there are no copies for students to keep. He has also used the Internet to produce pictures of scaffolding collapses. However, many students are unable to see the pictures clearly as there is no screen and the slides are merely projected on to the classroom wall. Some students become bored. Using drawings and scale models of putlog and independent scaffolds, the teacher asks students to suggest the reasons for each component. However, the majority of his questions are directed to the experienced students. These students give good answers and learn quickly. The majority of students, however, do not participate and learn little. Not until the end of the lesson does the teacher take the students to the project area where they are able to start to assemble both types of scaffold. The younger students start to show interest and ask some pertinent questions, but lack of time prevents the students from completing the exercise.

[Teaching and learning unsatisfactory (5)]

Commentary

In this lesson, teaching is unsatisfactory. The teacher has good subject knowledge but does not pass it on well and has not fully involved all the students. Instead he focuses too much on the mature students, some of whom already have experience of using scaffolding. The teacher has prepared his Internet materials well but has not checked that the projection facilities are suitable. He does not allow enough time for the practical activity at the end of the lesson to consolidate learning. The mature students participate well in the lesson and increase their understanding of the topic. However, the majority of students learn little and therefore learning is unsatisfactory overall.

Example 8: evidence from a construction first year national diploma lesson in an FE college; 15 students present (2-hour lesson, first and last half-hours observed)

Unit topic: 'Surveying processes: height of collimation method'

A very well-planned lesson, which compares the height of collimation method with that of the rise and fall method for calculating the levels of ground. The teacher starts with a useful recap on the work covered in the previous weeks. By questioning individual students about the different types of levelling instruments and the rise and fall method of booking, the teacher is able to satisfy himself that the students generally have a good understanding of levelling. Most students show a very good understanding of the topic. He is also able to correct a couple of students who have not understood the advantage of closure on to the original benchmark.

The teacher then clearly introduces the height of collimation method of booking. By using direct questioning, he leads the students to identify the advantages of using the method for height measurements on a building site and to contrast its use with the rise and fall method when undertaking a longitudinal land survey. The students competently calculate reduced levels for a number of examples, using gapped handouts and by referring to some very good quality OHP slides. As a first exercise in recording by height of collimation, the students book their readings on levelling staffs positioned around the room. All are able to check their calculations correctly.

In pairs, the students then undertake a well-resourced, short, practical levelling exercise in the nearby brickwork shop. This includes the recording of soffit levels. The teacher emphasises the need for students to book the results directly in their levelling notebooks. A few students' figures indicate some basic errors in booking. The teacher picks this up and shows students how to correct them. Back in the classroom, by using challenging questions the teacher is able to check that most students have a good understanding of the two methods. Finally the lesson is completed by the teacher carefully explaining the practical exercise (a survey of the college site) to be undertaken the following week. Students are asked to prepare their booking sheets and decide in advance the change points to be used on the survey.

[Teaching and learning very good (2)]

Commentary

This is a good example of a teacher planning a lesson very well and ensuring that all students are actively involved. Survey equipment is readily to hand. The handouts and overhead transparencies (OHTs) are of a good standard. Directed questions and frequent individual attention ensure the teacher knows those students who are unsure of the use of benchmarks. The quality of learning is very good, as the students are keen to undertake the exercises. The explanation of the following week's topic gives the students the opportunity to prepare for the next lesson.

Example 9: evidence from an NVQ level 1 general construction operatives lesson in an FE college; 16 students present

Unit: 'Handling materials'

A large group of students, some with learning difficulties. They are practising the manual handling of building products such as bricks and concrete blocks. The teacher carefully explains the objectives of the lesson, linking them well to last week's theory lesson. Students recall the content of this lesson well. Before they are asked to undertake each task, the teacher checks that individual students understand the health and safety issues. Most are able to give appropriate responses. The teacher gives good individual support, prompts and assists students where necessary and carefully monitors progress. The majority of students initially tackle each task enthusiastically. The exercise is allocated too much time, however, and those students who complete the tasks quickly have to stand and wait for the remainder to finish. Unfortunately, the lesson is disrupted by the delivery of new building materials to the workshop. Some students lose interest and do not complete the task. A few become bored and start to distract the other students, until the teacher challenges them. At the end of the lesson, the teacher briefly asks the students to discuss any problems that they have encountered, and the majority are able to suggest how they could improve their handling techniques.

[Teaching satisfactory (4); learning unsatisfactory (5)]

Commentary

Students get the opportunity to apply the knowledge gained in a previous lesson. The teacher ensures health and safety issues are understood and uses directed questioning to help students improve their handling techniques. However, for a few able students, the practical exercise is allocated too much time. This is a weakness in teaching. However, the strengths in teaching outweigh the weaknesses and the teaching is, therefore, considered satisfactory. Learning is spoiled by an event presumably beyond the teacher's control. As a result, some students become bored and distract other students. Some students do not complete the tasks. Most students consolidate their understanding of the topic, but only a minority complete the task to the required standard, and so the learning is unsatisfactory.

Example 10: evidence from an NVQ level 2/3 wood occupations lesson in an FE college; 20 part-time students of various ages and experiences (2-hour lesson, last hour observed)

Fourteen are studying the use of joists (NVQ level 2) while the remainder are working individually, using open learning packages covering topics such as staircases and doors. The packages are those produced by a national consortium and used in many colleges. The students are arranged in rows, with the level 3 students sitting at the back of the room.

The teacher explains the use of joists, largely using OHTs and incomplete handouts to the level 2 students. Some students are unable to see the screen clearly and ask for clarification but are ignored by the teacher. He makes little attempt to check students' understanding. His explanations of many of the details, such as the use of plasterboard on steel beams, are very brief. Some OHTs contain too much detail and the teacher asks the students not to copy all the information shown. Many of the students become bored and talk to each other while they copy from the OHT. The teacher recognises that one OHT is too detailed and so attempts to explain the detail using a sketch on the whiteboard. However, he talks while drawing and the students find it difficult to understand his explanation. Few are able to copy the sketch before the teacher shows the next OHT. The teacher is in the middle of describing the construction of a flat roof when the lesson ends. Few students have completed the sketch.

The level 3 students sit and read through the packages, although many spend their time talking to each other about what they did at the weekend. The teacher has provided relevant technical literature at the back of the room and some students use it to add extra notes to the packages. Their notes often contain technical words spelt incorrectly, although there is evidence of the teacher correcting some errors. Their files are poorly organised. The teacher has very little contact with the students during the lesson apart from asking them not to speak too loudly. He does not check their progress.

[Teaching and learning poor (6)]

Commentary

In construction, students studying different qualifications are often taught together. This can work well in practical lessons where most craft students work on individual exercises. However, in theory lessons this can be problematic for teachers and for students. It is essential that the teacher considers the different needs of the two groups of students – for example, their previous knowledge and ability to study using learning packages. In this example, the teaching is weak as the lesson is poorly prepared, the quality of handouts and OHTs is poor, and there is little use of direct questioning to check the students' understanding. There is a lack of variation of activities so that the teacher can spend time with both groups of students. Learning is poor as many students lack motivation and easily become bored; they do not work well on their own; they have little contact with the teacher; and the quality of their notes is poor.

2.3 Other evidence on teaching and learning

Although under most circumstances lesson observation is the most important source of evidence on the quality of teaching and learning, the analysis of work and discussions with students can also throw valuable light on the quality of teaching and learning. Provisional judgements from these sources of evidence can be put alongside other evidence to come to an overall view. This is particularly important when the work includes a coursework component undertaken over an extended period of time, where the observation of individual lessons may give a very partial picture of the students' learning experience and of the support provided by teachers.

The work analysis will give you a good feel for the overall rate of progress, and therefore the pace of the teaching. It will show the range and depth of the work which the students are required to do. For example, the pace of teaching and learning is often revealed when looking at the projects and practical work completed in the first stages of the course. It will also indicate whether students use an adequate range of realistic work situations and whether they are challenged sufficiently to develop their skills.

Discussions with students will give you a sense of their motivation and the range of their experiences. Questions can also be asked to show whether they have a clear understanding of how well they are doing and what they must do to improve.

3 Other factors affecting quality

Other factors should be evaluated in terms of the impact they have on standards and on the quality of teaching and learning. Note and evaluate any significant features of the curriculum, leadership, management, assessment, support for students, staffing, resources or accommodation. The following issues might be explored.

3.1 Staffing

- | Do teachers have a good knowledge of their subjects?
- | Do they keep up to date with developments in the industry, and is this demonstrated in their teaching?
- | Is learning affected by the way technicians are deployed?

3.2 Accommodation and resources

- | Are there sufficient stocks of consumable materials as currently used in the industry?
- | Is learning affected by storage arrangements for materials, equipment and students' work or by the relationship between group sizes and the available workroom space?
- | What are the arrangements for practical and laboratory work?
- | Are workspaces realistic and is their provision adequate for students to work at height, off scaffolds, towers or other temporary structures?
- | Are there sufficient areas for the preparation of materials before their use by students?
- | What are the arrangements for students to undertake surveys in realistic environments?

3.3 Curriculum

- | Do the curriculum and schemes of work ensure students safely develop their practical skills alongside knowledge and understanding?
- | Are the differing previous experiences of students taken into account, especially when students studying different qualifications are taught together?
- | Are students suitably helped to find jobs or to progress to further study?

3.4 Management

- | Is there good management of health and safety?
- | Are funds maintained to allow for repair, maintenance and replacement of equipment on a rolling programme, such as woodworking machinery?
- | Do equipment and plant reflect that used in industry or are they outdated or inappropriate and do they meet the latest health and safety requirements?
- | Is effective use made of workshop and classroom space?
- | How well does the range of provision meet the needs of local employers?

4 Writing the report

Not all subjects or courses will be inspected in detail but, where a course is, there will be a section in the report giving the evaluation of that subject post-16. The following is an example of a subject section from an inspection report on a college of further education. (It does not necessarily reflect the judgements in any or all of the examples given elsewhere in this booklet.) The summative judgements in inspection reports use, for schools, the seven-point scale – *excellent; very good; good; satisfactory; unsatisfactory; poor; very poor* – and, for colleges, the five-point scale – *outstanding; good; satisfactory; unsatisfactory; very weak*. The summative judgements *excellent/very good* used in school reports correspond to *outstanding* in colleges; *poor/very poor* used in schools correspond to *very weak* in colleges.

Construction

Overall, the quality of provision is good.

Strengths

- | Pass rates are high on level 3 courses.
- | Retention rates are good on most courses.
- | The teaching is good overall.
- | The standards of students' practical work are good.
- | Standards of work in portfolios are also good, and they are well presented.
- | There are productive links between college staff and employers.

Areas for improvement

- | Pass rates are low in plumbing.
- | There are low attendance rates on full-time courses.
- | There is insufficient written feedback on students' work.
- | Achievement is poor on modern apprenticeships.

Scope of provision

The college offers a broad range of construction courses at foundation, intermediate and advanced levels. These include craft and technician courses and foundation and advanced modern apprenticeships. Specialist provision includes NVQs in gas installation, wood machining and flooring. The college is a designated training centre for industry-based staff in floor-covering techniques. Students can attend for full-time, day or block release and evening courses. In 2001, the college enrolled over 1,600 students on construction courses, of whom 410 study full time. There are 170 work-based trainees on modern apprenticeships.

Achievement and standards

Standards are generally above average. Pass rates on level 3 courses are good. They are particularly high on both technician and carpentry and joinery courses. Pass rates for the GNVQ Construction and the Built Environment foundation course improved significantly in 2000. However, pass rates for NVQ plumbing have been poor. Few trainees successfully complete their modern apprenticeships; most leave the course before all requirements are met. Retention rates on most courses are good and consistently above national averages, but the attendance rate of 59% on full-time courses is poor.

Students produce good quality practical work. For example, students on a new first year carpentry and joinery course were able to produce work to accurate tolerances, well above the expected level for the stage of the course. In painting and decorating, students work on a range of practical activities in wallpaper hanging, surface preparation and finishes. All display high levels of skill while working on their tasks. New plumbing students accurately produced a pipework assembly free from defect, and then tested the product to industrial standards. By inspection evidence, the standards of work in plumbing are generally higher than indicated by the previous pass rate. This is due to changes in staffing. Standards of students' work in portfolios are also good. They are often well presented and contain well-drawn and annotated sketches enhanced by the use of ICT.

Quality of education and training

Teaching is good overall. Some 74% of lessons were good or better. None was less than satisfactory. Lesson plans and schemes of work are well designed and meet course requirements. In the best lessons, especially on level 3 courses, teachers make good use of students' industrial experiences to illustrate important points and promote discussion. Good reference is made to relevant codes of practice, British standards and technical journals. Teachers check students' understanding regularly. The standard of practical work is generally good. Realistic practical projects are set, students work to industrial standards and are encouraged to observe safe working practices. During lessons, students receive good individual guidance from teachers, who maintain their interest and help them to make progress.

In some of the weaker theory lessons, the pace is occasionally too slow for the more able students. Teachers do not always take sufficient account of the different abilities of the students in the group or the limited capacity to understand instructions in practical lessons, particularly among a small number of students whose first language is not English. They do not check regularly whether all students have understood. In one lesson, the teacher spent too much time explaining the main purpose of the activity. At the end of the lesson, some students had not produced what was required, while the work of others was incorrect. Some of the assignments on the national diploma course are too easy. They do not provide tasks that require students to demonstrate and apply their knowledge at an appropriate standard for the level of the course.

The quality of marking of assignments is variable. Teachers sometimes apply different criteria for grading. Teachers' comments and feedback to students on their written work are insufficiently detailed to help them to improve their performance. The poorest examples of assessed portfolio work only contain a series of ticks with few summary comments.

There are strong links between college staff and employers. Students undertaking work experience benefit from these strong links. For example, full-time construction students are working on a major refurbishment project involving a charitable organisation and a main contractor. Through these arrangements, students gain reliable experience of real work activities. Although employers on work-based programmes provide a wide range of training opportunities for skills development in the workplace, their understanding of NVQ requirements is poor. Few employers are aware that assessment can take place at work. Work-based training programmes are not successful.

All full-time students have an induction which is effective in introducing them to the college and their courses. Tutorial support for full-time students is good and students appreciate the support they are given. Recently, tutorials have been introduced for part-time students, but it is too early to evaluate their effectiveness.

Teachers are well qualified. They have relevant previous industrial experience. However, too few undertake industrial updating. Technical support is not always adequate. The construction area has a range of workshops, a laboratory and adequate computing facilities providing access to specialist software. The workshops have sufficient materials and equipment. The library has adequate books for construction crafts but too few suitable texts for the national diploma courses.

Leadership and management

Construction provision in the college is well managed. Self-assessment is rigorous. Issues raised are acted upon and progress is monitored. Students attend regular course team meetings to express views about the quality of the teaching and learning. However, there is insufficient sharing of good practice. Procedures for monitoring the effectiveness of work-based learning are inadequate. There is little co-ordination of training on and off the job.

