TQEF NCT Project Briefing No.19

Accessible Learning and Teaching Materials: A practical guidance note for teachers and materials developers

Introduction

HEFCE publication 99/48, Teaching Quality Enhancement Fund, invited bids for funding under phase three of the FDTL programme. In its advice to bidders it states 'in line with the Council policy to widen participation in higher education, applications should consider how project outcomes can be made more accessible' (para.82). This guidance note has been jointly written by the eQuip team and the Disability Information Systems in Higher Education (DISinHE) service for the National Co-ordination Team to support potential bidders in meeting this requirement but existing projects will find it equally useful.

This briefing should be read in conjunction with Project Briefing No. 5, Developing Learning and Teaching Materials.

The principle of accessibility

Accessibility in higher education institutions is not just about physical access: the institution's public information, selection and admission procedures, learning and teaching, examination and assessment methods and materials, as well as central facilities, staff development programmes and quality assurance processes all need to demonstrate how they can best meet the needs of an increasingly diverse student population.

'Disabled students are an integral part of the academic community…accessible and appropriate provision is not 'additional' but a core element of the overall service which an institution makes available' (QAA Code of Practice: Students with Disabilities). This principle, that accessibility of provision is one quality measure against which the quality of institutional provision will be judged, reflects the Funding Council's own concerns with widening participation.

The social and political context

Between 1994/5 and 1998/9 the number of students known to have a disability increased from 3% to 4.1% of the student population (67940 students in all).

This upward trend is likely to continue for a number of reasons, not least the Disability Rights Task Force recommendation that 'a separate section on further, higher and local education authority-secured adult education should be included in future civil rights legislation to secure comprehensive and enforceable rights for disabled people' (from Exclusion to Inclusion: a report of the Disability Rights Task Force on Civil Rights for Disabled People – DfEE December 1999).

Higher education institutions, as employers, already have legal obligations to ensure disabled staff are not discriminated against in the workplace: accessibility, in all its dimensions, is an issue for staff, too. The Colleges and Universities Careers Organisation (CUCO) commissioned survey (1996) reported that '41% of universities and 25% of colleges had an employment policy on disabilities and only 23% of universities and 15% of colleges had a code of practice'. Out of the 2486 senior staff surveyed only 23 were recorded as disabled. CUCO is committed to the view that 'disability should not be isolated from other equal opportunities issues'. The aim should be to incorporate disability into the overall approach to diversity and equal opportunities, involving all aspects of the organisation.

While this document generally refers to students only, it is understood that the text could equally apply to staff.

Who is disabled?

Disability covers a wide range of impairments including physical and mobility difficulties, hearing impairments and visual impairments, specific learning difficulties including dyslexia, medical conditions and mental health problems. Some of these impairments may have few if any implications for a student/member of staff's life or study. Others may have little impact on day-to-day life but may have a major impact on study, or vice versa. Students/staff may already be disabled when they apply to an institution, others may become disabled or become aware of an existing disability only after their programme has started. Others may have fluctuating conditions. Some students/staff may be disabled temporarily by accident or illness.

What are the primary considerations?

Teachers and developers/facilitators of learning resources and materials (librarians, multi-media, CIT staff etc.) need to consider how best to ensure that both the content and the delivery of their programmes are as accessible as possible to as wide a group as possible.

The first key consideration is to think about access from the very first step of designing programme content/delivery.

The second key consideration is to ensure the design of materials offers as far as possible a range of access methods, as what suits one person may not suit another (e.g. subtitles on a video do not help a visually impaired student who may need another form of supplementary information).

Some of the more obvious considerations are outlined below but for further practical and detailed advice on teaching and assessment consult the excellent publication The Skill Co-ordinator's Handbook which has lots of helpful suggestions and lists of further information contacts and sources (available directly from Skill: National Bureau for Students with Disabilities price £10, http://www.skill.org.uk), the HEFCE publication Accessible Courseware, 99/05 (available on the HEFCE website http://www.hefce.ac.uk) and the

DISinHE Good Practice Guide: Teaching for Everyone (available on the DISinHE website http://www.disinhe.ac.uk).

Access to print/the written word: some considerations

Some students/staff who are blind, partially sighted, dyslexic or who have some other difficulty in accessing standard text may well benefit from having materials in a different format e.g. in large print, in Braille, on disk, or on audio cassette tape.

Large print is printed material using large letters. A minimum of 14 point and preferably 16-18 point is recommended. It can be produced by photo-enlarging ordinary print, but the quality of print is improved if work is produced in large print at the outset, particularly if bold print is used. It is generally more difficult to scan large print, and many people using residual vision find it tiring to concentrate on any print for long periods. (Students who prefer large print may, depending on their eye condition, use a closed circuit television (CCTV) which throws an enlarged version of a page onto a screen. Computer software can also be obtained to enlarge print on the screen, thus providing independent access to those students who prefer to deal with materials on disk. Others may use a hand held or desk top magnifier.)

Braille is a system based on patterns of raised dots to represent letters. For those who are fluent Braille users, Braille offers a system exactly parallel to printed text. Braille can be created by a Braille embosser from a normal computer so that the student or lecturer can input materials as they wish and receive hard copy in print or Braille as required.

Blind and visually impaired staff/students may prefer examination papers in large print, on tapes or in Braille. They may also prefer to present their own scripts on a computer, via an amanuensis or on tape.

People who are blind, and who rely on screen reading software to access web information, may be able to do so if web pages conform to Web Content Accessibility Guidelines. If web pages do conform to these guidelines, other users are not likely to be disadvantaged (see Accessible Courseware, the HEFCE publication 99/05 and http://www.disinhe.ac.uk).

Some students with dyslexia type problems find it difficult to read densely printed text and some of these students (as well as some deaf students) would find text written in densely structured language also difficult to access.

Some students with other impairments, such as specific learning difficulties or Asperger's Syndrome, may have difficulty in comprehending written text, and benefit from simple style and language. Providing a framework for materials (e.g. a flow diagram) at the beginning of any publication/presentation can be helpful.

Written materials and printed diagrams are easier to decipher if they are clear and simple and on non-glossy paper, with strong contrast in colour and tone; preferably good black ink on white paper. An uncluttered layout without too much on the page is helpful.

Access to visual images: some considerations

Some students with a visual impairment will need visual material (film, video, graphs, diagrams, etc) to be supplemented by auditory information and/or disk based transcripts. However, do not assume that videos, overheads and material on a board will be useless to any blind or partially sighted people. Verbal explanations about the material can help some students.

Diagrams, tables and other pictorial information are less easily produced in Braille. In some cases it may be appropriate for information of this sort to be relayed through an oral or written description. Diagrams can be adapted and turned into tactile diagrams by the National Centre for Tactile Diagrams at the University of Hertfordshire, http://www.nctd.org.uk, which provides a service for students across the UK. A cheaper alternative for diagrams is the use of German duplication foil (which can then be labelled on a Brailler) or plastic/manila sleeves. The best solution will depend largely on the complexity of the diagrams being used and the student's preferred method of accessing information.

Some students will use other senses to take in information, for example, feeling the shape of equipment by putting their hands over objects in demonstrations.

Access to the spoken word: some considerations

Many students who are deaf/hard of hearing will find the subtitling of video and film useful. Similarly written transcripts of spoken material (audio cassettes, film, videos) may be necessary.

There are many different kinds and degrees of deafness (just as there are of visual impairments) and deaf students may use speech, lip-reading, sign, a hearing aid or a mix of all of these in day-to-day communication. Only a small percentage of deaf students use sign language only, but for these students you may wish to consider not just subtitling videos/providing transcripts but also signing them as part of the production process.

Should your materials require students to produce the spoken word, be willing to anticipate the needs of those with speech difficulties. Some deaf students and some students with other disabilities e.g. cerebral palsy may prefer to use overheads/synthesised speech.

General points

Some students who have impairments will need assistive technology or the services of an educational support worker to help them access the curriculum. Some will have access to a Disabled Student Allowance (DSA), although few will be fortunate enough to have acquired and practised with the equipment, which the DSA will fund. Others will postpone their decision about whether they will apply for equipment or other forms of educational support until they have tried out learning in a new environment. There may be a complexity about the interplay of individuals' teaching styles, new subject matter, physical characteristics of

rooms and the use of equipment or educational support which combine to make the induction process even more experimental than it will be for all students.

Many students have personal equipment which allows them to access text in an alternative way. Computers with scanners, screen reading software, and speech output, CCTVs, screen magnifying software, computers with Braille input and output are some of the enabling technologies available. However, much personal equipment is not transportable even where students own their own equipment, and students who rely on such equipment need access to it on campus if they are to make use of periods between time-tabled classes. For many courses involving the use of computers, enabling technology will also be needed in computing labs.

Many people who consider themselves to have a disability are not ill. However, of those who are, occasional spells in hospital or at home can be necessary, just as they can be necessary for any student. And when this happens, knowing that it is possible to return to the course when the student is well enough is very reassuring. Most higher education institutions are able to make arrangements to help a student who becomes unexpectedly ill to catch up when it is possible for them to do so. Building this possibility into courses from the start might widen accessibility.

Universal design

Finally, what makes for good accessible design for some disabled students/staff makes for good accessible design for all. All staff and students will appreciate publications where:

- Layout (on paper/web) is uncluttered, simple and clear.
- Print contrasts are strong and print fonts are a reasonable size.
- Visual information is supplemented by aural/written information.
- Aural information is supplemented by visual information.
- Language is clearly structured and simply expressed.
- Frameworks/route maps for materials (paper, web based) are always available.
- Assessment methodologies are flexible and imaginative while remaining fit for purpose and appropriate to learning objectives.

Practical work: some considerations

(With thanks to Anne Simpson for permission to reproduce the draft text form.)

Practical classes are part of many university courses, particularly within science and engineering. Traditionally, these have been incorporated into the programme of study to allow students to develop practical skills, but the focus has changed over time towards greater use of computers for simulation or modelling.

It is useful to begin with a question about the purpose of a laboratory or practical class as a way into considering whether or what changes to make to ensure the inclusion of as many students as possible.

What exactly are students being asked to do, and with what educational objectives?

If understanding rather than development of a practical skill is the key aim, then it may be possible to substitute alternative activities when any student, for whatever reason, (and these could range from limitations of University resources to ethical judgements) is unable to acquire the skill. Those delivering courses perhaps need to have a view on whether it is crucial that students should be able to do the activities in question, or 'only' understand what it is that is being done. If understanding is the objective, then it may be sufficient if students observe processes, not necessarily at close quarters, rather than actually conduct them. In many practical settings, not all students perform every task in any case, but often learn by observing others perform the activity. This would be less appropriate where the educational aim is to develop a skill in addition to developing understanding of a process.

In recent years, some universities, (e.g. the University of Delaware) have developed virtual laboratories, which minimise physical requirements and allow all students access to laboratory equipment through the integration of instrumentation and the use of simulation software. Many more universities supplement laboratory practice with some simulated, computer based experience. Sophisticated measuring equipment in Immunology and other laboratories has reduced the necessity for manual dexterity for all students engaged in some activities.

Laboratory and other practical classes are often seen as teaching environments in which concerns about safety are paramount, and few people would dispute this. What is more debatable is whether safety necessarily needs to be compromised by including more students with impairments. The vast majority of students with impairments pose no more safety considerations than any students, and the same procedures will maximise the safety of all.

For students with some impairments, if understanding rather than activity is the goal of a practical class, then it is likely that staff will be able to accept the principle of a student working with and through an educational support worker whom the student directs to perform a variety of tasks. In this case, the support person would be the practical class equivalent of a scribe for written examinations. Enabling a student's inclusion would then be a matter of acceptance of a principle rather than, or as well as, provision of equipment or resources.

There are some fairly straightforward and low-tech ways of modifying or adapting equipment or activities to allow students with various impairments to participate. Professor Alan Jones's book and video, Able Scientist, Technologist; Disabled Person, (Elsek Publications, Loughborough; or Commercial Centre, Nottingham Trent University) outlines some of these fairly low-tech ways of enabling students with various physical and sensory impairments to participate in laboratory activities. Examples include auditory displays of visual information (such as talking thermometers), tactile displays of visual information (such as beakers with raised markings), clamps and other devices for holding items of equipment, and hand held, illuminated magnifiers. Professor Jones's approach has been to look at the activity which students are asked to do, and then to creatively problem-solve with the student for whom the

activity would present some difficulty. His book also provides useful outlines of ways in which practising scientists with impairments have negotiated problems. Such examples are likely to multiply as people who develop impairments while in employment are helped by the Disability Discrimination Act's requirement of employers to find ways of maintaining and supporting people in employment when this occurs.

Difficulties for students with visual impairments in laboratories are sometimes related to textual materials rather than equipment, and in these circumstances, alternative formats, verbalising text or interfacing lab equipment with computers with large print or speech output might be helpful.

Clearly, the demands of laboratory and practical work are as many and as varied as are the needs of students with a great range of impairments. Clearly negotiation between lecturer and student with a view to creative problem solving is likely to lead to the most productive outcome, and others are likely to benefit from any consequent publicising of innovative solutions.

Placements/study abroad and field trips: some considerations

While there are many, many different activities involved under the headings of placements, study abroad and field trips, nevertheless these elements of courses often involve common factors, such as the uprooting of students from their usual study (and perhaps also living) environment to one which is very different, and the control of the environment by people outside the student's home HEI, for example, employers, or professional bodies. The range of activities also calls for a standard response, namely careful and timely planning, and clear identification of the purpose of the placement or trip.

What is the purpose of the placement, study abroad or field trip, and its role in the overall course?

All students are likely to want as much information as possible about all aspects of the activity, such as answers to:

- Is it a requirement of the course?
- What does it involve?
- How can students prepare?
- How much will it cost to participate?
- What do students need to take with them?
- How is it assessed?
- What happens if you are unwell at the time and can't attend?
- Is there any alternative to attendance?
- Is part-time attendance possible?

A clear, accessible outline providing as much information as possible as early as possible, will help to prepare all students for the activity, and be useful for any student who would

have difficulty (for reasons which might be financial or personal, as well as those associated with some impairment) in completing it.

The question of purpose is likely to be central to a department's considerations when designing an element of a course, such as a field trip, for example. If the point of the trip is for students to demonstrate and extend their skills in climbing, then more challenging terrain may be needed. But if the purpose is to collect specimens for geological analysis, then challenge may be less important. Inclusive field trip design will envisage a variety of potential participants, and accommodate as many varied needs as possible without compromising the educational objectives.

Departments organising work placements for students with impairments will need to consider, ideally alongside students themselves, the differences between the placement context and environment and the more usual, and often more structured, context of study. Sometimes, the use of equipment or personal assistance could, with a little planning, transfer to a different context. Software supportive to dyslexic students could be used in a workplace to enable a student to produce written work of a satisfactory standard. Similar equipment might be appropriate for trainee teachers in classrooms.

Some equipment or educational support may not be so easily transferable. Taping lectures may be acceptable in a way that taping interviews with clients in a setting requiring confidentiality may not be. Some non-medical, personal help, such as communication support for lectures, could be regarded as obtrusive in some one to one work involving clients.

It will sometimes be necessary to identify additional items of equipment for specific purposes. For example, a sound monitor could be used as a visual indicator of classroom noise for a trainee teacher with a hearing impairment. A laptop with speech synthesis linked to a data projector could allow a blind trainee teacher to do the functional equivalent of writing on a chalkboard. And this latter arrangement could clearly have uses in other work contents involving presentations. The fact that funding may need to be found to purchase additional equipment for placements underlines the necessity to plan and prepare long before the placement start date.

Travel, physical access and length of working day may be relevant considerations for students who have impairments affecting mobility or stamina. For some students, the option of carrying out a placement over a longer period on a part-time basis could be helpful, and reflection on the large numbers of people in employment who, for many different reasons, work part-time, might recommend the offer of this option during training.

If the work placement is an integral part of the course, then it is to be expected that such issues would have been considered during the pre-entry admission process. Nevertheless, work placement environments may not always be predictable. Indeed, changes which bring about increased access for people with impairments, may be more likely than the reverse, with the progress of the Disability Discrimination Act and other legislation bringing new obligations to employers whose employees develop disabilities. And this in turn may impact on the requirements laid down by professional bodies whose regulations, where relevant,

must of course be taken into account. Changes in available work placements could produce either new constraints and challenges or new flexibility and freedom of choice for students with impairments.

This briefing has been prepared for use by FDTL projects by Liz Sutherland on behalf of the National Co-ordination Team. The sections on Practical Work and Placements have been taken from work in progress on a SHEFC-funded project to develop a curriculum access audit tool. For more information place contact Anne Simpson, University of Strathclyde, a.simpson@mis.strath.ac.uk. The National Co-ordination Team welcomes suggestions, examples or illustrations for use in future briefings.

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