

TEACHING AWARD

UNIT 3: UNDERSTANDING INCLUSIVE PRACTICE

GOOD PRACTICE IN TEACHING AND LEARNING: APPROACHES TO SOCIAL INCLUSION

Further Reference

Making Your Teaching More Inclusive
Open University, www.open.ac.uk

INCLUSIVE TEACHING AND LEARNING

Inclusive teaching means recognising, accommodating and meeting the learning needs of all your students. It means acknowledging that your students have a range of individual learning needs and are members of diverse communities: a student with a disabling medical condition may also have English as an additional language and be a single parent. Inclusive teaching avoids pigeonholing students into specific groups with predictable and fixed approaches to learning.

Inclusive teaching

- takes a coherent approach which is **anticipatory and proactive**
- has a strategy for delivering equal opportunities and diversity policies
- involves the whole institution
- matches provision to student needs
- incorporates regular reflection, review and refinement of strategies and methods that actively involve disabled students.

Experience has demonstrated that adjustments made for disabled students can often benefit all students. Inclusive teaching is good teaching. For example, when reviewing how to describe a diagram to a blind student, it might become apparent that there is a better way to present the information for all students.

In making your teaching inclusive you reassess the material you use in your teaching and the way in which it is delivered and assessed.

Providers should place learners in the best possible **learning environment** for their needs, whatever those needs may be. Several strategies may be required to ensure that the specific needs of an individual are met. Providers should devise a comprehensive strategy to tackle every aspect of an individual learner's need – this may become complex and is a growing challenge for providers who have to cater to an increasingly diverse population of learners.

Why does inclusive teaching matter?

- Inclusive teaching is more likely to be good teaching.
- We live in a diverse society: education should reflect, promote and facilitate this.
- More and more disabled people are entering higher education.
- The **DDA** requires universities not to discriminate, and to provide equality of opportunity for disabled students.
- Disabled students are increasingly **aware of their rights** and less prepared to accept inadequate provision.
- Although provision for disabled students has dramatically improved in recent years, it is still patchy, under-resourced and inconsistent.

Further resources

- **Beyond Prejudice: Inclusive learning in practice** from the Learning and Skills Development Agency offers strategic and practical pointers for the provision of an inclusive learning environment.

- **DEMOS: Online Materials For Staff Disability Awareness (2002)** is an online resource aimed at academic staff, and examines the issues faced by disabled students in higher education. **Modification of examination and assessment arrangements** are also discussed.
- Engineering Subject Centre Guide to **Working with Disabled Students** (2nd Edition June 2005) includes practical ideas and case studies.
- **Premia resource base** awareness and development materials are for everyone involved in making the research environment more accessible for disabled students.
- **SCIPS** (Strategies for the Creation of Inclusive Programmes of Study) database provides information to support academic staff in improving access to the curriculum for disabled students.
- **SENDA compliance in Higher Education**: an audit and guidance tool to accessible practice within the framework of teaching and learning 2002, including a useful section on assessment.
- **Teachability** (2000) offers information and resources for academic staff to help in the provision of an accessible curriculum.
- [Techdis](#) has relevant resources and references, including a database of information and products to assist disabled students and staff.
- University of Bristol Access Unit provides **factsheets** for supporting disabled students.
- **University of Wolverhampton** - Learning, teaching and assessment: good practice guides for staff teaching d/Deaf students in art, design and communication and in science and engineering.

LEARNING ENVIRONMENTS

Learning may occur in a variety of physical locations, such as lecture theatres, seminar rooms, laboratories, workshops or field centres. The types of learning activity in each of these situations are often characteristic.

Apart from the physical location, the learning environment also encompasses teaching delivery and approaches to learning. Examine these from the perspective of disabled learners and consider how you can adapt your practice to facilitate the participation of these students and to ensure an appropriate and inclusive learning experience.

Think about the skills a student requires to take part in the various learning environments. These may be visual, auditory or tactile skills. They may be related to language, perception, memory, concentration or other attributes that are easily taken for granted. A lack of or a difficulty with any of these skills or attributes may affect knowledge acquisition, construction and assimilation. This in turn will affect your teaching delivery and strategies and how learning materials are used.

If you teach in laboratories, workshops and studios, or on field or study trips, look in particular at the section on practical environments.

E-learning and virtual learning environments (VLEs) are increasingly used in higher education and it is important to consider how they impact on disabled students.

Students may spend the majority of their time in private study and you should consider any constraints or barriers that may affect their learning in this environment and what you can do to assist.

Practical environments

Practical activities may present particular and significant barriers to learning for some disabled students. They may take place in environments such as ICT studios, laboratories, language labs, art studios, workshops, and specialist areas such as darkrooms. They may also include offsite activities such as field trips and study visits.

Conversely, some students may find practical activities easier to manage than lectures or seminars because there may be more freedom to move around and to take time out. In some practical sessions (laboratories for example) expectations may be clearer, whereas in others (such as art and design studios) having your creative work constantly observed may be a source of stress and anxiety.

Practical environments represent important learning opportunities, particularly in subjects such as science and the creative and performing arts. The approach you take to make your teaching as inclusive as possible and to meet the specific needs of disabled students does not differ in essence from the approach in other areas of learning.

The following strategy represents a recommended anticipatory approach.

- Look at your learning outcomes to ensure that they are as inclusive as possible and that they do not unnecessarily or unintentionally disadvantage some students.
- Consider the teaching strategies you plan to use. Identify the practical learning activities taking place and consider the skills and abilities the students are required to employ.
- Are there any aspects of the practical activities that may present difficulties for students with particular impairments? For each activity, identify possible issues.
- If the practical activity presents insurmountable barriers to students with particular impairments then it might be appropriate to consider whether it can be replaced by one that is more inclusive. This will then reduce the need to make reasonable adjustments for individuals.

You may be concerned about the **health and safety implications** of disabled students working in practical environments.

Practical sessions may last several hours and this may cause difficulties for students who have stamina or concentration problems. Students who find it difficult to manipulate delicate equipment or to use heavy machinery, as well as visually impaired students, may need a practical assistant to undertake these tasks for them, under their direction.

The issues for deaf students undertaking practical activities are essentially similar to those for other learning situations, and much of what has been written in relation to inclusive teaching and teaching in **lectures, seminars and tutorials** applies to practical work.

The added value for many students taking part in e-learning is the flexibility and control that they can have over their learning. If they are given choices and support, materials delivered in this way can be adapted to suit learning preferences, for example by reading text with synthesised computer voices, or changing background colours and fonts and using magnification.

Access to e-learning, with the digitisation of texts, can be an important element of day-to-day study for visually impaired students, especially those who are dependent on screen reading software. Extra time may be required to learn to use the software. Poorly produced software can be effectively inaccessible to such students.

The ability to work at home in one's own time is also valuable to students with mobility and dexterity difficulties, who may have had adaptations made to their computer input and output systems.

Software programs to aid accessibility include on-screen keyboards with switch access, predictive software programs, and voice or speech recognition systems with macros. Hardware devices include key guards to improve typing accuracy, single switches, track balls, and other specially designed items such as head or eye pointing systems, some of which are described in **Assistive technologies**.

If typing quickly is difficult then asynchronous methods of communication may be preferred, such as e-mailing or posting to a discussion forum. It is important to encourage peer-to-peer collaboration and to maintain good contact with students to avoid feelings of isolation.

Deaf students whose first language is BSL may have problems with the written English needed for e-mails and conference discussions, but that does not mean they should be curtailed, merely adapted using clear and concise language.

When the location for online learning is in a general access area it is possible to inadvertently introduce physical barriers, not just technical ones. Simple solutions, such as raising the height of a computer table, can enable a person using a wheelchair to reach the keyboard. A supportive, height-adjustable chair allows a student with a back condition to sit more comfortably. Other equipment can make a great difference: easy-to-reach front loading printers, computers with raised buttons, or a casing that has the connections, controls and drive slots located at the front.

Skills For Access is a comprehensive resource on issues relating to multimedia, e-learning and accessibility.

ALERT (Accessibility in Learning Environments and Related Technologies) has subject-related guidelines for improving the accessibility of online learning, for use by academic and academic related staff.

Return to SENDA? Implementing accessibility for disabled students in virtual learning environments in UK further and higher education Dunn, Sarah, City University (2003).

The BBC site **My Web My Way** shows users how to make websites more accessible by changing their own browser, computer, keyboard or mouse settings.

Private study

Private study is a major part of the student experience. It may be required

- in preparation for a formal teaching situation, such as a presentation or a discussion in a seminar
- to learn a particular technique, for example involving IT or specialist equipment
- for the production of assignments
- in revision for examinations
- as general reading, thought and discussion in order to help understand and assimilate new ideas and information.

Developing appropriate study skills

Some disabled students come to university with well-developed study skills and strategies, but this is not necessarily the case. Many universities provide generic study skills support which targets such aspects of learning as taking notes, effective reading, essay writing, revision and so on. **Specialist support staff** may be available to support particular types of study skill, such as time management and organisational skills for students who have specific learning difficulties. Or they may

work with students who have been deaf since birth in order to develop their skills in written language. Learning mentors for students with mental health difficulties or Asperger's syndrome may fulfil a similar role. This support enables students to develop the skills they already have, and helps them to acquire new ones in order to study more effectively.

Whether or not disabled students have developed the study skills they require in order to be effective learners in higher education may depend on two main factors.

- **Previous educational experience** – If a disabled student's needs were not met in school they are unlikely to have had the opportunity to develop study skills. Although many segregated schools provide an excellent education, others have low expectations of their pupils and don't develop their independent learning skills. Those students whose specific learning difficulties (including dyslexia) were identified while they were at school may have well-developed study skills that enable them to cope with the independent learning expectations of higher education. Students who come to university and then discover that the difficulties they have encountered are related to dyslexia may need further support to develop these skills.
- **Onset of impairment** – A student who developed an impairment after finishing their school education may struggle to acquire the necessary study skills strategies. For example, someone who has become visually impaired as an adult may previously have used their sight to read but may now rely on audio versions of the written word. This requires a very different set of study skills. A student who has become hard of hearing as an adult may struggle with lip-reading and may have great difficulties extracting meaning from the spoken word.

'Levelling the playing field'

For many students it is just not possible to level the playing field. You should appreciate that students with some impairments may, for example, take substantially longer to read a book or write an essay. This may be for reasons related to their impairment, irrespective of the study skills they have developed or the reasonable adjustments that have been put in place by the institution.

Consider the **barriers to learning** experienced by students with particular impairments.

- Pain and fatigue difficulties can adversely impact on periods of private study, which may have to be kept quite short.
- Short-term memory and concentration difficulties may mean that a student has to constantly recap what they have learned before going on to the next topic.
- A student with organisational difficulties may not be able to work on several pieces of coursework simultaneously.

Many disabled students know that they have to work significantly harder and longer in order to achieve the same results as their peers and it is important that this is recognised.

Try to consider private study in the context of

- the issues faced by students with particular impairments
- the support that you can give
- how private study can be supported by the library and through specialist staff and ICT.

Disabled Students' Allowances (DSAs) are made to support the private study of disabled students. Such support could take the form of assistive technologies, human support, or simply a computer to help in private study.

During a student's course it is important to review the provisions set in place and adapt them if necessary. Discuss arrangements regularly with the student so causes for concern can be dealt with before problems arise. Try to ensure that changes are made collaboratively so the student does not feel undermined.

Blind and visually impaired students usually have access to assistive technologies to support their private study. They may also have a **support worker** who they can work with as a **reader** or **scribe**, as a **note taker**, or in providing general assistance with library or web research. It is important to recognise that private study activities inevitably take longer for blind and visually impaired students – even for those who are organised and skilled – because access to visual materials is such a key aspect of study. You can help reduce these difficulties by

- providing reading lists well in advance so that books or articles can be obtained in alternative formats
- indicating which texts, and chapters within them, are key
- ensuring that Internet resources you recommend are compatible with the student's assistive technologies, for example, **screenreaders**
- providing online learning materials such as lecture notes that can be output by the student in accessible formats
- providing information on assessment questions or learning activities (e.g. lab sessions or field trips) as early as possible
- providing scanning facilities with optical character recognition and speech output; Braille and audio transcriptions may also be required.

Many visually impaired people experience painful and debilitating eye strain when they study for long periods and they may need to plan their private study sessions accordingly.

Deaf students often have excellent independent learning skills, however their ability to engage in private study in an effective way may depend on their previous experiences as deaf learners. Students who have become deaf or hard of hearing in later life may need to develop specific skills, such as better lip-reading, in order to function well at university.

Deaf students can benefit from borrowing concessions in the library, such as longer loans. They may take considerably longer to read and extract information from printed material and from online resources such as the Internet and virtual learning environments. Be aware that any online learning resources you recommend will need to be captioned or a transcript provided if there is audio content.

The success of private study for students who have **specific learning difficulties** varies enormously. Some find these periods valuable for catching up on work that

has not been completed during the day, but others may be unable to settle to work without persuasion. Some make the most of assistive technologies as they work through assignments, others like to discuss topics with friends before writing. Some will use **recording devices** to review notes and revise, others will organise their ideas with the use of concept mapping, post-it notes and other methods that help with the prioritisation and ordering of ideas. It also helps to offer

- a prioritised reading list
- online lecture notes and references that can be used with reading technologies
- electronic materials with speech output
- online timetables, with reminders for hand-in times clearly highlighted
- realistic timescales for completion of work, with extra time allowances
- alternative presentation of material, for example the creative use of graphics to complement written work, if this is appropriate to the learning outcome.

Some students with **mental health difficulties** may find private study difficult for reasons such as

- unmanageable symptoms, such as anxiety, depression and altered perceptions that may interfere with the ability to study
- low confidence and self-esteem, which may adversely affect motivation and make it difficult to sustain private study
- unrealistic or inappropriate expectations, which may lead to difficulties in setting achievable personal goals or making judgements about how much study is required
- memory, concentration and organisation difficulties, which can have a significant adverse impact on private study
- sleep problems and fatigue, which may affect stamina and the ability to meet deadlines.

Not all students experience all the difficulties described here – they vary from student to student and often from day to day. You cannot remove these difficulties, but you can help to support students who experience them by providing as much information in advance (e.g. booklists, handouts, assignment questions) and by being clear about what is expected from them in terms of private study and preparation. Students with mental health difficulties may work with a learning mentor who supports them in developing strategies to make their private study more effective.

Most students with **mobility or dexterity difficulties** will have developed coping strategies when it comes to learning in the classroom and at home. However, they may be overwhelmed by the amount of independent learning they are now expected to undertake. Time remains a real issue for some, and where accessibility is a problem just getting about can be difficult to cope with.

Consideration from academic, library and support staff can make a real difference. Here are some suggestions for reducing the effects of common difficulties.

- Make assistance available in the library to find books, access catalogues, bookshelves, microfiche and other equipment such as photocopiers that may be too high or hard to operate
- Offer a reduction or no fines for overdue library books, as reading may take longer

- Reduce photocopying costs so that paper copies can be made, as they are lighter and may be easier to cope with than books
- Arrange help to carry books and journals, and for dealing with crutches, sticks, books and bags – perhaps a locker in a study area so items can be stored for short periods
- Offer help in prioritising reading lists
- Supply a reader for items that cannot be scanned or photocopied, or are awkward to handle
- Understand that periods of learning may be shorter than those of other students
- Be aware of the need to pace the amount of work undertaken
- Discuss timetabling assignments with other staff to avoid bunching
- Set up electronic means for delivering and receiving work – the intranet, e-mail etc; pigeon holes are rarely accessible

SPECIALIST SUPPORT STAFF

Increasingly, students use **assistive technologies** to support their learning and this may replace a support worker in certain situations. For example, the use of a laptop in a lecture, or lecture notes made available on the intranet, could make it unnecessary for a student to have a note taker.

However, disabled students often still require specialist human support in order to remove or reduce some of the barriers to learning that exist in different learning environments. So, for example

- a **visually impaired student** may use a note taker
- a **deaf student** may use a British Sign Language interpreter
- a **student with dyslexia** may have a specialist study skills tutor
- a **student with mental health difficulties** or **Asperger's syndrome** may work with a learning mentor
- a **student with mobility difficulties** may require a general assistant to work with them
- a **student with manual dexterity difficulties** may need to work with a practical assistant in a laboratory or studio.

Staff specialisms fall into two categories.

- Specialist learning support and tuition, such as study skills tutors for students who are deaf or who have specific learning difficulties, or a person to train students in how to use enabling learning technologies. This support usually takes place outside the classroom and students have to incorporate these study support sessions into their timetable. You may never meet these tutors.
- Practical individual support, such as note takers, BSL interpreters, enablers and general assistants. You are more likely to be aware of these support workers because they may accompany students into lectures, seminars or practical classes.

Learning mentors may bridge these two categories. They may combine study skills tuition with more practical day-to-day support.

You will not normally be involved in recruiting or booking support staff but you do need to know something of their role, how they can support learning and the implications for your teaching.

Please bear in mind the following points when working with support staff.

- Specialist support staff can be a scarce resource.
- Specialist support staff are usually well educated and qualified. Some have additional professional qualifications and are governed in the way they work by a professional code of practice.
- It may be necessary to match support staff to a subject or course, and the more technical or specialised the subject, the more difficult this may be.
- Specialist support staff are there to support the student, not you, but the emphasis should be on working as a partnership.
- Support staff are paid for their services. Their fee is borne by your institution or by the student's DSA.

- Changes to the timetable should be minimised in order to avoid disrupting a student's arrangements with support staff.

Support staff are often part of a disability service offered by a university, and this in itself can cause concerns for those with specific learning difficulties or mental health difficulties as they may not see themselves as being disabled. However from the financial point of view students do need to work with this department in order to receive support and gain a **Disabled Students' Allowance**.

Depending on individual needs, students may be provided with study skills guidance and assistance in developing strategies for organising their learning and workload. They may require the support of someone with a background in counselling or mental health. Some students may need one-to-one support on a daily basis in order to attend lectures or visit the library. An increasing number of universities now have a member of staff, often within the disability service, whose role is to coordinate this provision.

Universities are increasingly providing training and guidance for specialist support staff, particularly in how to work as a note taker, scribe or reader, and some of these courses are now accredited.

SUSTAINING SELF-ESTEEM AND MOTIVATION

Sometimes you will want to encourage your group to work harder or to take revision seriously. General exhortations to the group to 'buck up' can be taken very personally by students whose self-esteem is already low and can have the opposite effect. For example, students who feel they are doing their best, but still are not keeping up with their work, may become so discouraged that they lose motivation and believe that whatever they do will not be enough.

Some students may have had great difficulties in their past education, leading to very low expectations. Just exposing themselves to a new learning situation may be extremely challenging. Low confidence and self-esteem may make it very difficult for a student to believe they can be successful, and problems to do with learning may seem insurmountable. Lack of motivation may make life and study very difficult.

Other students feel compelled to strive for perfection – the fear of not excelling may be perceived as failure, or it can lead to procrastination and not getting started on tasks.

You may need to say to a student 'good enough is good enough' and help them to focus on what is necessary and achievable.

The way forward is through your own knowledge and understanding of each of your students. It is important to be alert to signs of anxiety and stress and to work from what you know are a student's strengths. For example, you could ask for a portfolio of pictures on a subject rather than a written report, or ask a student to interview someone on the subject and offer a layout for the interview instead of giving them an unstructured assignment.

- Find out what supporting networks are available within your institution – there may be a student dyslexia group for example – and check the drop-in times at the disability services department.
- Set aside some time when students can ask questions in private. This can be immensely helpful for those who find it stressful to talk in public.
- Look out for signs of overload, which may cause ill health due to poor eating habits or excessive work. A conscientious student may not pay enough attention to their health.
- Give some thought to the way you mark a student's work. It is obviously important to maintain academic standards but it is also important to try to encourage through constructive criticism.
- Make sure to recognise successes – these should be nurtured and expanded upon.
- Be aware that mistakes are often made by accident or a lack of awareness rather than carelessness. This is often the case for students with specific learning difficulties.

Support methods for enhancing time management and organisational skills by providing spare timetables, giving reminders about hand-in times and room changes in writing as well as orally, and making sure required reading has been understood.

LEARNING MATERIALS

Good practice

There is much that can be done to improve access to printed materials.

The [RNIB](#)'s 'Clear Print' leaflet in their 'See it Right' pack contains the following guidance for producing printed materials that are accessible to visually impaired people. These guidelines are also likely to improve access for students with specific learning difficulties and visual-spatial discomfort (Meares Irlen Syndrome).

- Employ a layout that is simple and uncluttered – the different elements of page layout such as text, headings, illustrations etc should be clearly separated rather than competing with each other
- Provide a clear title at the top of the document and consider breaking up the text with sub headings
- Use a printer which gives good sharp letters – over photocopied handouts or newsprint articles can be difficult to read
- Use a 12 or 14-point sans serif font (such as Arial) – avoid highly stylised or ornamental typefaces
- Avoid italics, underlining or large blocks of capital letters – use a bolder or larger type to emphasise important points or headings
- Consider spacing between lines – 1.5 spacing is likely to produce a more readable document than single spacing
- Keep the same amount of space between words in a passage of text – for this reason avoid fully justified text
- Avoid centred text except for headings – generally left-aligned text is best
- Avoid lines of text that are too long, and do not split words at the ends of lines by hyphenation
- Create a space after paragraphs, and avoid long paragraphs
- Ensure good contrast between the text and the background on which it is printed
- Avoid setting text over images or 'wallpaper' as this produces variable contrast
- Avoid very white or shiny paper as it may cause glare

Accessibility for students with manual dexterity difficulties is improved by offering

- comb-binding or ring-binding
- printed on one side of the paper
- thicker paper.

Alternative and accessible formats

Although some visually impaired students can read documents prepared as described above, perhaps with the aid of a hand-held magnifier or CCTV, many require information printed in an alternative format. The format chosen depends on the type and degree of visual impairment, and may be a matter of preference or practicality (e.g. audio tape or an enlarged typeface).

The following are examples of alternative formats for text you produce for students.

- Large font – the size chosen depends on the needs of the individual, but is usually between 16 and 22 point. You may need to reformat your document in order to keep a sensible layout.
- Large paper – some students may be happy with an A4 document photocopied at double size onto A3 paper, however the larger paper is more difficult to handle and store.
- Computer disk or e-mail – supplying documents electronically allows the student to use enabling technologies to output the information in the format of their choice (e.g. large font, audio, Braille).
- Braille – some but not all blind people are Braille users. Braille is a system of raised dots, which enables blind people to read by touch. Braille may be the format of choice for documents that need to be stored for reference (e.g. instructions) or memorised. Your institution's disability co-ordinator may have information on Braille transcription services, or there may be an in-house production service. A blind student may have facilities to produce a Braille version themselves from an electronic version of your document. Producing text in a foreign languages, mathematical notation and music in Braille are all possible by using specialist programmes. More information can be found in the [RNIB](#) Factsheet, 'Producing Braille and Tactile Images' and on [TechDis](#). Bear in mind that a Braille-reading student may not be able to skim read, and may take up to three times as long as a sighted student to read a text.
- Audio recording – this may be useful for a descriptive piece of text (such as a story) but less so for a document where you need to jump from section to section to extract information. Professional transcription services are available that can organise the content of complex documents to incorporate indexing and descriptions of visual images – ask your disability coordinator for advice.

Accessible textbooks

Blind and visually impaired students may require access to textbooks in alternative formats. Reading lists of essential books should be supplied well in advance so arrangements can be made to borrow or transcribe them via the institution's library or disability coordinator.

The RNIB Library has large print books, talking books (including digital talking books, DTB, which have improved navigation), and books in Braille. With sufficient notice they can also arrange to have other books transcribed or borrowed. Further information can be obtained from the [RNIB](#) Library Information Service.

The usual rules about copyright no longer apply to blind and visually impaired students and their educational establishments. They are now able to produce an accessible copy of any book, journal or periodical published in the UK (and some foreign works) under the Copyright (Visually Impaired Persons) Act 2002, which came into force in October 2003. Further information about this can be found at the **Copyright and Licensing Agency**.

Noticeboards

Blind and visually impaired students have difficulty extracting information from displayed notices. Alternative arrangements should be made to convey important information that is usually presented in this way, such as administrative requirements, deadlines or any changes to timetables, and also to more general information such as forthcoming concerts or talks that your students might be interested in.

PRINT MATERIALS: DIAGRAMS, GRAPHS & PICTURES

Diagrams, graphs and pictures can support the learning of students, particularly those with specific learning difficulties. Mind maps are one example.

However, consider how the information you present as diagrams, graphs, maps or pictures can be made accessible to a blind or visually impaired student. Some students may be able to access them if they are re-drawn using thicker, blacker lines.

There are two main alternative methods of producing accessible materials, as described below.

Tactile versions

Tactile versions can provide access to diagrams, maps and graphs for blind students. They have raised lines, shapes and textures that the blind person can feel, accompanied by labels in Braille.

Tactile diagrams are typically hand drawn or printed onto heat sensitive (or 'swell') paper. On heating, the paper covered by black ink rises above the remaining surface. Your institution may have equipment to produce simple tactile diagrams in-house. However complex images may need to be redesigned to make the information accessible, and this can be done to a professional standard at the **National Centre for Tactile Diagrams**. Advance planning is required for the production of new tactile diagrams but the NCTD also has an archive of existing materials.

Computer software can be used to produce tactile diagrams or reproduce other visual images that can then be printed onto Braille paper. This is described in the RNIB Factsheet, 'Producing Braille and Tactile Images', available from their website.

A quick solution for simple graphs or diagrams is the use of German Paper, which, when drawn on with a pen, produces a raised line. Or heat pens can also be used with swell paper to produce hand drawn tactile diagrams. These methods may be used to provide relatively cheap and on the spot solutions.

Described versions

The more complex visual teaching materials, such as reproductions of paintings or photographs, cannot be provided in tactile form and need to be described either by you or a sighted assistant. A student not proficient at extracting information using the sense of touch may also require described versions of simple visual images.

The description can be made available to students in the accessible format of their choice (e.g. audio tape or Braille). The Open University has produced a set of useful guidelines for academic staff on how to provide descriptions of visual course materials on their **Knowledge Network website**.

There are particular issues for blind students studying mathematics and statistics and who need to use Braille and accessible alternatives to access complex graphs and diagrams.

ACCESSIBILITY AND POWERPOINT PRESENTATIONS

Accessibility and PowerPoint

PowerPoint presentations can be problematic for many students, particularly if too much information is presented on each slide.

- Visually impaired students may not be able to read the slide, so you should read the content aloud.
- Deaf students will not be able to read the slide and at the same time lip-read or watch their interpreter, so time should be allowed for reading.
- Students with specific learning difficulties may not be able to take in the information from a slide if it is only displayed for a short time and if the tutor continues to talk without referring to the slide.

One benefit of a PowerPoint presentation is that it can easily be made available to students in electronic format so that they can continue to study its content outside the lecture. The following guidelines should help you to make your overhead projection transparencies and PowerPoint presentations more accessible to all your students. Note that different accessibility issues arise depending on whether the PowerPoint is viewed as a displayed presentation or as an electronic file on a computer.

- Consider giving the complete PowerPoint slide show to the student rather than using online access, so that it can be used in edit mode.
- Consider the font size and layout to use and do not put too much information on each slide - a maximum of 25 words per OHP or slide, with up to six bullet points has been suggested as good practice - the adage, 'never put more on an OHP than you would put on a T shirt' provides a useful guideline.
- Do not use colour alone to convey information, and use good contrast between text and background: a dark font on a light background is best for light rooms and a light or white font on a dark background for dark rooms.
- Mouse-over screen tips, graphs, tables, forms and other Microsoft Office interactions can only be accessed by some screen readers, so alternatives should be on offer.
- PowerPoint presentations should be developed using the templates offered, with clear fonts that allow for magnification.
- Speaker notes can be read by all screen readers and some can cope with presentation mode.
- Sound needs to be heard automatically as the slide appears.
- An appropriate narrative is essential to guide the user when videos are used, and all other graphical information must be appropriately described within the setting.
- Only certain screen readers can cope with PowerPoint navigational buttons or hyperlinks.

PROJECTED MATERIALS, FILM AND VIDEO

Teaching materials presented as film or video are likely to present difficulties for **blind and visually impaired students**. There are two main ways to make them more accessible.

- The student could be given a copy of the film or video before the teaching session, to watch with a sighted assistant who would describe the visual aspects to them.
- If the film or video is an important part of your teaching it may be sensible to invest in an audio description. The [RNIB](#) Customer Services Centre has a Braille and audio-described video library, and a service for producing audio descriptions.

The **Scottish Sensory Centre** has produced a useful resource on making video more accessible to visually impaired learners.

Deaf and hard of hearing students require transcriptions or subtitled videos for the content to be accessible.

- If subtitles are not available, provide transcripts of videos in advance for deaf students and their interpreters or lipspeakers to give them an opportunity to prepare.
- Allow students to borrow a copy of the video beforehand so that they can watch it with their interpreter
- If practicable, provide a lamp so that the interpreter or lipspeaker is still visible to the deaf student while the lights are dimmed.

Ensure that any off air recordings that you make to support your course use a VCR that can record embedded subtitles. If you are using bought videos try to ensure that they have embedded subtitles and use a caption decoder. Films on DVD usually have a subtitle option.

Subtitles or transcriptions are needed for these materials to be accessible to deaf students. Make a transcript available for the BSL interpreter or lipspeaker prior to the viewing to give them time to prepare.

SOCIAL INCLUSION AND ASSESSMENT

It is good practice to provide all students with early information about the assessment strategy for their module or course. Disabled students can then think about any difficulties they might face and identify their needs. The information provided should include assessment timetables, locations, activities assessed, methods of assessment, types of assessment (i.e. formative or summative), alternative assessment methods and alternative assessment activities.

The adjustments that might be appropriate depend on the assessment method, the needs of the student and the learning outcomes. Sheffield Hallam University's **Accessible Assessments** website provides useful detailed guidance on possible adjustments for different types of assessment, and on accessible and inclusive assessment design.

A student with disabilities may well have already worked with a learning support tutor or other staff to find a set of assessment strategies that suit their learning style. For example, students with specific learning difficulties may find it helpful to use diagrams or mind maps when planning an essay, or they may have various ways of coping with time restraints. However, other individual issues may still arise, especially with text-based assessments where questions may confuse or answers take too long to write for a student to show their knowledge. The student may arrange to have support from a scribe (amanuensis) or a reader, or both. Alternatively they may produce their written answer using a computer or other specialist equipment.

The main issues for blind and visually impaired students undertaking assessments are the availability of accessible formats and human or technical support. Students may need assessment questions and materials in alternative formats. They may require the assistance of an amanuensis or the use of assistive technologies. Using these strategies invariably takes longer and may necessitate a more flexible approach, including additional time.

Students who are prelingually deaf or whose first language is BSL may have difficulties extracting meaning from written text and formulating answers in English. Deaf students may do well in written coursework assignments where they can have the support of an English language tutor, but not be able to demonstrate their learning in written work under timed examination conditions. Many find multiple-choice or long complicated examination questions difficult to understand. Assessed presentations may also disadvantage deaf students if they are not provided with appropriate reasonable adjustments. Even then, if the assessment criteria include presentation style, they may be unfairly disadvantaged. A solution might be to have the questions signed, or the responses signed and translated or written up.

Mental health problems can be exacerbated by increased tension associated with assignments. Agreeing suitable assessment adjustments with the student in advance may help to avoid unnecessary mental distress in the run up to deadlines and exams. However, you may need to take a flexible approach and be prepared to make other arrangements as necessary.

The main problem for those with mobility and dexterity difficulties is accessibility, time and tiredness. However, as everyone has their own method for coping in these situations it is important to make adjustments that take into account personal preferences.

Procedures to claim extenuating circumstances can be very stressful for any student, particularly if they have to wait some time for a decision to be made on whether their extenuation will be accepted and their work marked. For students with disabilities this delay can be particularly difficult to deal with because of the need to plan their work load and support arrangements.

SPACE (Staff-Student Partnership for Assessment Change and Evaluation) is a project based at the University of Plymouth that aims to develop and promote alternative forms of assessment as a way of facilitating a more inclusive approach.