COMPUTER ASSISTED ASSESSMENT AND DISABILITIES

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Introduction

During the preparation of this paper the authors received the comment “It’s very interesting but what’s Computer Based Assessment got to do with disabilities?” In short, the answer is that in the development of any learning and teaching material, accessibility is important for several reasons, not least of which is the legislative and quality standards that are now imposed on academic and academic support staff across the UK. Guidelines to promote accessibility to online learning have been produced by several projects including the Web Accessibility Initiative (http://www.w3c.org/WAI/). This article will discuss the provision of Computer Assisted Assessment (CAA) in relation to disabilities in higher education. Rather than provide a series of ‘do’ and ‘do not’ statements, the importance of usability, good design and use of existing resources has been stressed, indeed it should be part of good practice for all students not just those with disabilities.

Technology and disabilities in education

In 1997 the Dearing report identified the ability to use Information and Communication Technology (ICT) as a key skill and an important outcome in all higher education programmes. The report highlighted the use of ICT to ‘improve quality and flexibility of higher education and its management.’ (Dearing, 1997). Initiatives, including the Computers in Teaching Initiative (CTI), the Fund for the Development of Learning and Teaching (FDTL) and the Learning and Teaching Support Network (LTSN), have also contributed to the body of knowledge on the use of ICT in higher education.

One of the most ICT specific is the Teaching and Learning Technology Programme (TLTP). Launched in 1992 by the Universities Funding Council, its work was continued under successor funding councils for the constituent parts of the UK. The programme aimed to improve the quality of teaching and learning by exploring and exploiting new technologies. A major outcome of Phase 3 of TLTP is the Computer-Assisted Assessment Centre, based at University of Luton. The Centre provides a range of activities to support staff in the development, use and implementation of CAA in higher education, and the increase in use of CAA in HE has been significant.

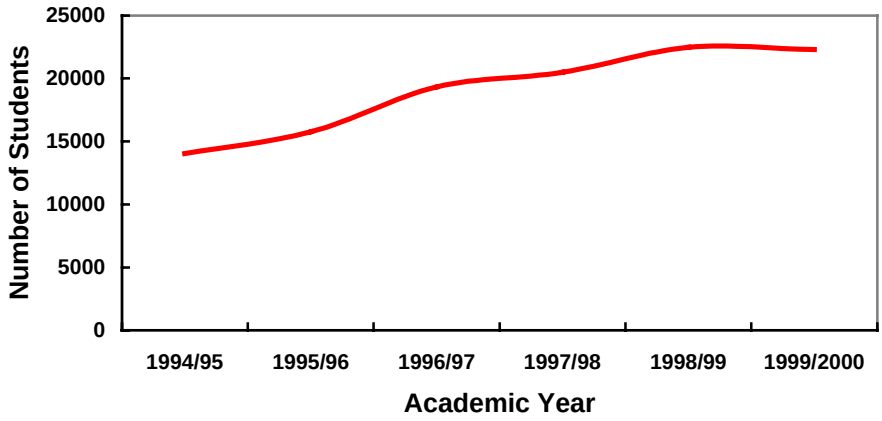
In February 2001, responding to technological advancements in education and new quality standards and legislation, the Joint Information Systems Committee (JISC) set up a service to ensure that issues of access and disability are addressed. TechDis, Technology for Disabilities Information service, aims to enhance access

through technology to learning and teaching, research and administration activities for students and staff with disabilities in further and higher education. The involvement of TechDis in the learning technology agenda stems from the need to ensure students with disabilities can access learning technologies and to explore how learning technologies can be used to enhance access to learning and teaching. Therefore, it is logical that TechDis, given its remit, should be active in the CAA arena and seek to alert staff in the field to legislative and quality issues. TechDis can act as a conduit for the body of knowledge and expertise in CAA and also broker good and innovative practice used to support students with disabilities.

Disabilities and Higher Education

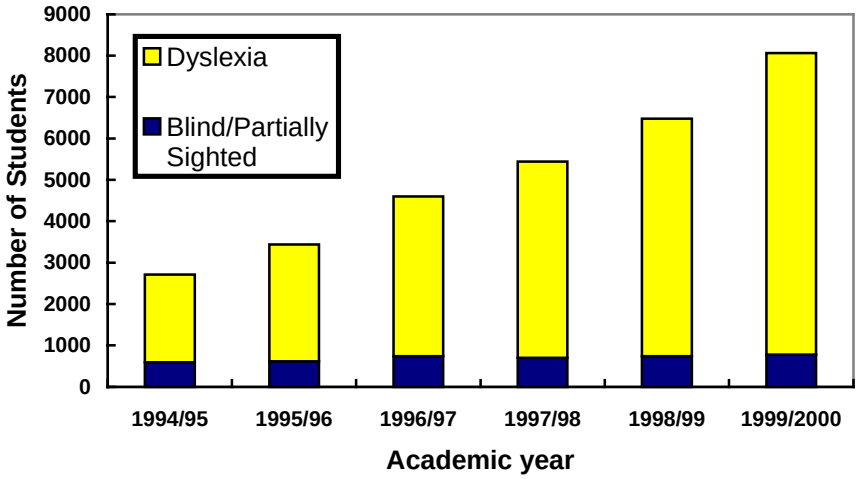
The number of students registering a disability over the period 1994 – 2000 in the UK has grown by sixteen percent (from 14,034 to 22,290) (figure 1). However, this figure is only indicative, as some students (understandably) do not register a disability. As the number of undergraduate students with disabilities increases so does the pressure to meet their needs by ensuring there is access to all areas of learning and teaching, including both summative and formative assessment.

Figure 1: Number of undergraduates who registered a disability in Higher Education 1994 – 2000 (HESA Data)



The majority of these students (over 8,000) register either dyslexia or blind/partially sighted as a disability though other relevant areas include mobility difficulties, those requiring personal care support and mental health difficulties, a significant number of students registered multiple disabilities (HESA 2000). The number of undergraduates registering dyslexia as a disability has risen dramatically. However, the numbers shown in figure 2 for dyslexia may not represent the reality, some students may only realise they have, or are recognised as having, dyslexia after starting their academic career.

Figure 2: Number of undergraduates with specific disabilities in Higher Education 1994 – 2000 (HESA Data)



CAA and Students with Disabilities

Computer Assisted Assessment is being implemented in higher education for a variety of reasons such as improved course management and enhancing the learning experience (Charman and Elmes, 1998). This latter reason is achieved in a variety of ways, for example in the provision of formative testing to aid revision as it can provide immediate feedback (Brown *et al*). In addition Brown *et al* (1999) also identified other benefits of using CAA including reduced load on teaching staff when marking or giving feedback and bringing the assessment culture experienced by students closer to their (computer based) learning environments.

Accessibility guidelines (those guidelines that pertain to fonts, colours and frames etc.) are well established for online materials. They are available at a very technical level covering aspects of HTML (HyperText Mark-up Language), XML (eXtensible Mark-up Language), CSS (Cascading Style Sheets) and a plethora of other issues (http://www.w3c.org/WAI). Other projects (Booth, 1999, Fisher and Jeffels, 2000, Sams and Yates-Mercer, 2000) have provided simple but effective checklists for good practice by interpreting these guidelines. These include the provision of text equivalents for images and video, providing transcripts of sound recordings and ensuring that information conveyed by the use of colour is available to those with colour deficient sight. It is often the learning technologist or educational developer who can broker these guidelines, during the planning stages of any move to use CAA or any online learning environment, it is essential that academic staff be made aware of them and any limitations that they may present.

Usability guidelines, those that, for example, refer to style, layout and navigation, should also be considered. This is a major area where learning technologists and lecturing staff can work together to provide a truly accessible and usable learning

experience. One of the better sets of usability guidelines is held at the Jakob Neilson web-site (http://www.useit.com/). Here the importance of screen layout, text formatting and layout (such as not justifying on screen text) and navigation is stressed. In promoting guidelines to lecturing staff, problems of accessibility for students with hidden disabilities (e.g. dyslexia) can be overcome, as well as producing material that is better designed for the student body as whole. The golden rule in online design is 'good design for accessibility is often just good design for all'.

A way in which CAA can benefit some disabled students as well as provide a rigorous examination process, is by its use to test higher learning. It is possible to design questions to assess different levels of students understanding according to Blooms taxonomy (Heard *et al,* 1997 and Paul and Boyle, 1998). A student unable to sit a long examination and write or type an exam paper [for mobility, mental health or other reasons] is able to fully participate in the assessment process. For example, a student who is unable to hold a pen or use a conventional keyboard may be able, through limited mobility, operate a switch to indicate correct answers.

Disabilities, the Quality Assurance Agency (QAA) and legislation

You may be thinking "I hear what you're saying but why should I change my practices?" It's a good question and whilst there are many altruistic reasons that can be used to persuade and cajole, the simple answer is "because you have to!"

The QAA's core business is to review the quality and standards in higher education. One of the Agency's key documents is the code of practice for the assurance of academic quality and standards in higher education, section three of which relates to students with disabilities
QAA (1999) (http://www.qaa.ac.uk/public/cop/copswd/contents.htm). The code lays out 24 precepts in relation to the provision of education for students with disabilities, the first of which is a general principle and states:

Institutions should ensure that in all their policies, procedures and activities, including strategic planning and resource allocation, consideration is given to the means of enabling disabled students' participation in all aspects of the academic and social life of the institution.

The 24 precepts cover all student activity and accompanying guidance notes go into great detail, perhaps the most applicable precept in the case of CAA is precept 13:

Assessment and examination policies, practices and procedures should provide disabled students with the same opportunity as their peers to demonstrate the achievement of learning outcomes.

It is therefore important that when academic staff are looking to use CAA in their learning and teaching practices (both formative and summative) that they take account of this precept.

In addition to meeting the requirements of the QAA code of practice all staff should be aware of the Disabilities Act 1995. On 11th May 2001 this act was amended to include all publicly-funded further and higher education institutions, schools with post-16 provision, and local authorities when they provide further, adult or continuing education or training. This 'new' law places duties on institutions and staff.

The duties are:
not to treat disabled students less favourably, without justification, for a reason which relates to their disability; and

to make reasonable adjustments to ensure that people who are disabled are not put at a substantial disadvantage compared to people who are not disabled in accessing further, higher and Local Education Authority-secured education.

In the case of information and communication technologies this may mean a review of all practices from the use of online prospectuses through to the provision of software and hardware in examinations. One particular implication for CAA will mean ensuring that all materials are provided in an accessible format, perhaps through a kite-marking system for computer based materials.

The nature of the legislation also means that institutions will have an anticipatory duty, i.e. they will need to ensure that access to education for students with disabilities is available, whether they have any or not. In terms of CAA this means that material should be in an accessible format, or at least have an alternative accessible format. The timescale for the legislation is very short, with learning and teaching having duties placed on it from September 2002.

It should be stated that is not enough to redesign a summative assessment to allow a disabled student access. If other students have access to formative assessments for 'practice', the legislation could be used to argue that the disabled student is placed at a disadvantage to their peers. Here the implication is that if a lecturer provides a suite of formative assessments for a course as well to provide 'practice' for students undertaking summative CAA, then all of the formative CAA should also be accessible. This interpretation could have far reaching implications for institutions who have been employing CAA for several years as an extensive suite of material may have been built up.

In Conclusion

Both academic and educational support staff are now working against a backdrop of pressures, including the provision of an enhanced learning experience using Information and Communication Technology (ICT), increasing student numbers and legislation to provide a comparable learning experience for all students. Strategies for embedding good practice need to be rooted in the planning stages of any education delivery, be it CAA, distance learning or traditional "chalk and talk" (which will also come under scrutiny of the new disabilities legislation). It is no longer acceptable for staff in higher education to say "it's the way we've always done it";

new legislation and quality standards are raising the profile of learning and teaching delivery. Learning technologists need to take a lead in ensuring that materials are designed to recognise the complexity and diversity of the student body and that a level playing field is achieved for students undertaking any form of computer assisted assessment.

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