A pragmatic and strategic approach to supporting staff in inclusive practices for online learning

Elaine Pearson
Accessibility Research Centre
University of Teesside

Tony Koppi
Educational Development and Technology Centre
University of New South Wales

Changes in legislation, an emphasis on widening participation and the increasing reliance on online techniques for learning and teaching have contributed to improved opportunities for students with disabilities to participate in Higher Education. Many accessibility advocates would argue that accessibility should be the primary consideration for the development of online resources, but in the academic setting it is usually teaching staff who are largely responsible for the production of their own electronic resources. Academics may lack the time, expertise and the motivation to undertake inclusive practices. This paper explores means of supporting academic staff in the creation of accessible and inclusive online learning materials through activities designed to create an empathy with the student experience, coupled with targeted, timely and appropriate training. We go on to outline the proposals for incorporating accessibility into an institutional strategy for e-learning and proposals for further research.

Keywords: accessibility, inclusion, staff development, online learning

Introduction

At a recent accessibility forum, web accessibility advocate, Bruce Maguire, stated that when designing for the web, developers should think "accessibility first, accessibility second, and accessibility all the way down the line" (Maguire, 2004). The Special Educational Needs and Disability Act (SENDA, 2001) and Disability Standards for Education (DSFE, 2005) amendments to the Disability Discrimination Acts in the UK and Australia, requires all services, including online learning, to be accessible to students. Furthermore, SENDA requires establishments to be 'anticipatory' in meeting students' needs, while the DSFE requires reasonable adjustment in consultation with students.

Online learning can be a liberating and enabling experience for disabled students. The adoption of blended learning and alternative approaches through a learning management system or a lecturer's web site can facilitate the same independence and equality of experience as their fellow students (Pearson & Koppi, 2002). Most often academics are largely responsible for producing and maintaining their own online learning materials, with the possible exception of specialist multimedia. While some embrace the challenge of new technologies with enthusiasm and accept the need for accessibility, other over stretched academics may regard the requirement to produce accessible online courses as a burden they have neither the skills nor the time to tackle (Bennett, Hewitt, Kraithman & Britton, 2003).

The challenge then for those responsible for supporting staff is how can academics be persuaded and adequately prepared to adopt accessible and inclusive practices? Should it be an all or nothing approach? Should academics be expected to ensure that their courses are fully accessible from the outset? Accessibility first, second and accessibility all the way down the line is not the priority of staff producing e-learning materials. At best they are concerned with creating an effective learning experience for their students, or using blended learning approaches to free up time for research. Given that academics already have many demands on their time and may not regard themselves as 'technically savvy' it may not be appropriate to take an all or nothing approach.

Universities and in particular those responsible for staff development and support, need to combine a strategic approach to ensure academic staff receive appropriate training with institutional planning to adopt inclusive practices.

Background

Through a project spanning five years (Pearson and Koppi, 2002, 2003a, 2005), partly funded by the Higher Education Funding Council for England (HEFCE), we have researched, developed and refined a pragmatic and strategic approach to encouraging inclusive practices. The three stage approach involves:

- motivating staff by encouraging empathy with students with disabilities;
- training to develop basic skills in accessible design using the tools staff are familiar with;
- institutional planning to ensure awareness raising at all levels and access where appropriate to expert support and resources.

Courses have been developed in different modes and at different levels of intensity to meet the particular needs of the staff involved, but feedback on the early workshops indicated that participants felt overwhelmed and even less confident about their ability to adopt inclusive practices (Pearson & Koppi, 2003b). As a result, the strategy arrived at for the course development was to pare it down so that staff achieved an appreciation of the practical difficulties experienced by disabled students, followed by training in practical skills in making the most commonly used e-learning materials accessible. The courses are based on five major themes which, taken together, would enable the academic to understand, appreciate and develop skills in accessible design. These five themes encompass:

- legal obligations which can also be regarded as quality assurance requirements;
- awareness of and the ability to use available guidelines and protocols;
- some understanding of the assistive technologies used by students with disabilities;
- awareness of designing for inclusion;
- checking tools and mechanisms that are available for the designer to check the accessibility of web pages.

The extent to which each of these themes is covered depends on the mode and intensity of the course. During the workshop sessions, participants have hands-on experience in the use of assistive technologies (including speech recognition tools and screen readers); tools for checking the accessibility of web resources; and the creation of accessible documents (including PDF, PowerPoint and Word).

The staff development activities are also being combined with an institutional strategy to ensure that an integrated approach is adopted. Kelly, Phipps and Swift (2004), propose a framework for e-learning developers that adopts a four stage approach: awareness, investigation, understanding and implementation. We suggest an approach aimed specifically at teaching staff who are aware of the need for inclusivity: motivation, skills development and strategic support. The remainder of this paper examines the strategies adopted, beginning with the way that staff are motivated by creating an empathy with the disabled student experience, followed by a description of the skills development programme. Finally we discuss the way that inclusive practices in e-learning can be incorporated into a wider institutional strategy.

Motivation

The literature on the use of simulations (particularly in the field of game play and business management), suggests that they can be effective as a motivational strategy (Colella, 2000) that promotes learning. In the business context, research suggests that interactive simulations enable people to develop rules that allow them to transfer their experience to real world situations:

> Fun simulations are memorable experiences. People play and learn from them without being compelled to. A community of players spontaneously forms around the simulation. Without realizing it, they develop and internalize rules for success that they can intuitively apply in the real-world (Glass-Husain, 2005).

Empirical evidence suggests that activities simulating particular disabilities do not facilitate the development of positive attitudes towards disabled people. However, when simulation is combined with other learning methods it can result in positive perceptions toward disabled people (Herbert, 2000).

In teacher education, research shows that the use of video can be beneficial in creating a culture of shared practice and that by sharing the experiences of experts through the use of exemplary video case studies, teachers are able to make explicit associations with their own practice (Meyer, David, Cantin & Aube, 2005).

Simulations of interactive computer activities as well as video clips of an expert blind user accessing learning activities through a virtual learning environment (VLE) were used to instill some empathy for the academic with the disabled student experience, to help them to understand the problem of access, to motivate them to adopt new practices and to persuade them that it is worth the effort.

The use of interactive computer activities from WebAIM (http://www.webaim.org/simulations/) (Figure 1) and from the Disability Rights Commission (http://www.drc-gb.org/newsroom/demo.asp) that simulate the experience people with different disabilities have when accessing the web helps staff appreciate the issues. It is important to note here that these activities do not simulate the disability itself, rather the effect that it may have on a person's interactions with the computer.
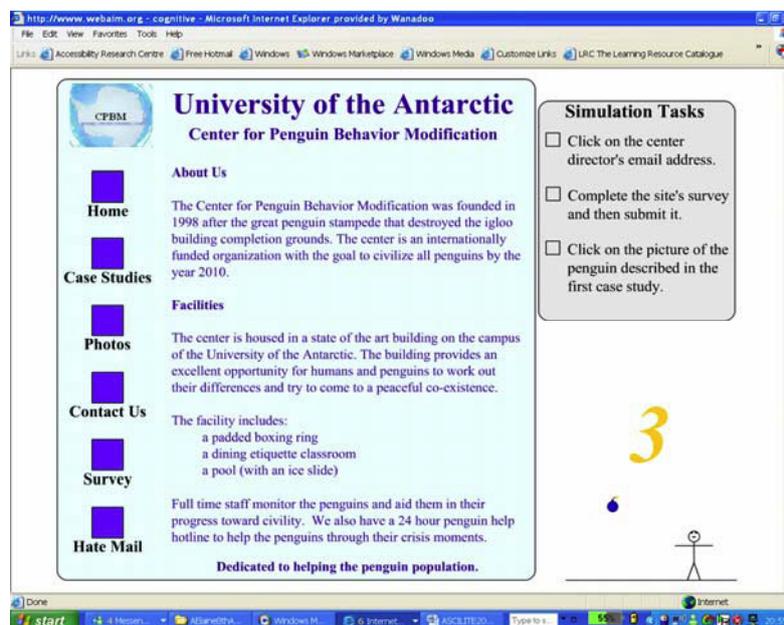
Figure 1: WebAIM distractibility simulation to illustrate the experience of cognitive disability on web access

Engaging staff with the learner experience provides motivation for engagement in making their own web materials accessible, as the following quotes illustrate:

> Having hands on experience simulating different scenarios gave very good insights.
> (Anonymous participant evaluation)

Viewing the student who is blind (in a recorded video) navigating through WebCT while he comments on the difficulties encountered or designs that are helpful, proved one of the most powerful and meaningful learning experiences for participants:

> The videos of the blind student and the practical work with assistive software are moving
> experiences for me personally. (Anonymous participant feedback)

The videos were custom produced in house and involved the blind student carrying out typical tasks within an online course including following instructions, reading and responding to messages in the discussion forum and attempting to read a paper in PDF format in preparation for answering set questions. The video shows the student carrying out these tasks in an 'inaccessible' format along with examples of how they can be made more accessible.

Evaluations confirmed the value of observing how the disabled student accessed the resources, the problems he had and the examples of how such activities can be made accessible. Typical comments included:

> Seeing how the blind student managed to get around web site and how resources can be easily re-worked to make them more accessible gave me ideas for improving my own course. (Anonymous participant feedback)

Through careful selection of appropriate interactive simulations that give the participant a perception of the disabled users experience of accessing the web, together with bespoke videos that reflect the authentic experience of disabled students the conditions are created that enable staff to empathise with the disabled student. This new understanding motivates participants to seek solutions that will make their courses more inclusive.

Skills development

Academic staff often see the need for meeting the needs of disabled students as the responsibility of the institution's disability service (Riddell, Tinklin & Wilson, 2004), yet they would regard development of their own teaching resources as largely their own responsibility. Our program includes face-to-face workshops which give participants experience in creating those documents that are most commonly used in VLEs and which academics would normally produce themselves: PowerPoint slides, Word documents and PDFs. These types of document, although most often used as teaching resources can be problematic for disabled students – particularly those with vision impairments or learning difficulties. Standard Microsoft PowerPoint slides can be a powerful teaching tool to support live presentations, to present key points as an aide memoir for students and to create handouts. Students often appreciate having access to slides on the web ahead of or after the class for preparation or revision. However, for students using screen readers, these slides are not accessible without an html version (WebAim, http://www.webaim.org/techniques/powerpoint/convert.php). Indeed slides that are content heavy or contain multimedia elements may result in large files that are difficult to download for many users; and multimedia may need other adaptations. Microsoft Word is often the originating document for other formats (such as PDF) and without the careful use of the formatting features (e.g. headings, titles, lists), inclusion of tags and descriptions, appropriate use of colour, structure, and use of language, these documents can be difficult for those with vision impairments or cognitive disabilities to access effectively (NCDAE, http://ncdae.org/tools/factsheets/word.cfm). Unless a PDF document is created from a properly prepared Word document, it is likely to be difficult or impossible to access, principally for screen reader users, those with low vision, motor disabilities or students with cognitive disabilities (WebAim, http://www.webaim.org/techniques/acrobat/). Many PDF documents found online are simply scanned from original paper documents and as such are converted to a graphic rendering them totally inaccessible to blind users.

Once teaching staff understand the reasons why students have difficulties accessing online materials, they readily engage with the hands-on activities. Staff need the opportunity to reflect and then follow up with more specific training to meet their own particular needs. Initially, many are concerned that there is just too much for them to know and be able to do. They need reassurance that they are not expected to throw away all their work (that isn't accessible) and that an incremental approach can be taken to introduce inclusive practices gradually and at a pace that suits their time and skills level.

Depending on the subject discipline, the individual students particular needs and the learning and teaching methods used, making e-learning resources accessible to all may not be practical or even desirable (Kelly, Phipps & Howell, 2005). If the tutor can make information resources and standard learning and teaching materials accessible as a first step, it will improve the learning experience and accessibility for all

students. Indeed, a recent audit of learning resources available through WebCT at the University of New South Wales revealed that almost 90% of the documents were in PDF format (which is often problematic for the reasons stated above).

More complex accommodations or alternative approaches can then be negotiated with disability support officers or learning technologists. An alternative or equivalent learning experience may not always be an online one (Phipps, Witt & Kelly, 2005).

Strategic planning

The need to incorporate strategies for inclusion in an organisational strategy for e-learning was identified in Bates ACTIONS model (Bates, 1997). Bates was referring not to the need for inclusion of disabled students, but rather to the need to ensure that all faculties are encouraged and supported in their use of technology for teaching. The ACTIONS model comprises a set of criteria: Access, Costs, Teaching functions, Interaction and user-friendliness, Organisational issues, Novelty, and Speed of course development/adaptation. Bates identified these criteria as those required to be taken into consideration when choosing and using technologies and when considering the relationship between learning, teaching and organisational issues. When the legislative, pedagogical and ethical aspects of inclusion of all students is taken into account, the need to provide appropriate support to achieve accessible e-learning is even more apparent.

The third finding from the project was the need to ensure that accessibility in flexible and e-learning is included as part of the institutional strategy for incorporating disability standards in education. Reid (1999) identified challenges from system, producer and user issues in bringing about changes in relation to the use of online learning. The strategy being developed at University of New South Wales can be summarised by drawing on some of the problem areas identified by Reid:

Technical change

New tools for producing accessible courseware, for testing the accessibility of online resources and assistive technology that supports the access requirements of disabled students must be researched and kept under review for their potential in supporting staff and students.

Skills development

Much of the feedback from the online courses and workshops we have held over the last five years has highlighted the need for ongoing and targeted training. Professional development activities should include access to online self help support (e.g. the accessibility support site http://www.edtec.unsw.edu.au/inter/support/accessibility/access_frame.cfm); guidelines specifically designed to be appropriate to academics (e.g. Pearson & Koppi, 2001); training in the use of particular tools, techniques and design; and awareness raising activities.

Communication

Disability legislation as it relates to education and online learning (e.g. the SENDA, 2001 amendment to the Disability Discrimination Act in the UK), the complexity of guidelines for web based content such as those produced by the W3C WAI (http://www.w3.org/WAI/), the standards against which accessibility is sometimes measured such as Section 508 in the United States (http://www.section508.gov/), or the Disability Standards for Education in Australia (2005), is complex and sometimes esoteric. Although the W3C2.0 Guidelines (which are expected to become the de facto standard for web accessibility), are designed to be more accessible in their presentation, and include examples and illustrations, the terminology is still beyond the scope of most who are not technical professionals. Those responsible for institutional support need to monitor, translate and where necessary distill these standards and guidelines into to user-friendly language and techniques to make them relevant to and usable by academic staff.

Technical expertise

Academics need to have access to specialist services for the creation of accessible resources (for instance captioned videos or accessible resources created in Flash MX) which may be beyond the technical capabilities of staff.

IT developments

There needs to be an institutional responsibility for monitoring the accessibility support provided by the vendors of learning management systems (such as WebCT and Blackboard) and for e-learning development tools. This might include the testing and evaluation of tools that may support the development process of accessibility resources for academics.

Not all of these initiatives need to be provided specifically by each individual institution - there are organisations whose remit is to support institutions in the preparation of an accessibility strategy and to offer support at all levels of the organisation. For example, the Web Accessibility Network for Australian Universities (WANAU, http://www.wanau.org) supports staff at all levels in web accessibility, and provides a collection of resources to help in the development of strategies for online accessibility. In the UK, TechDis (http://techdis.ac.uk), which is funded by the Joint Information Systems Committee (JISC), is an educational advisory service which aims to support the enhancement of the student experience through technology. Other services offer specialised student support that focus specifically on the needs of the individual. The Macquarie Customised Accessibility services (MCAS) was set up to address the problem that students are often forced into using whatever technology support is available at a given University. MCAS, a fees-based service offered across the Australian Higher Education sector (Kerr, Burrel & Sait, 2006) aims to provide a customized solution that meets the students' individual accessibility and pedagogical needs.

Further work and conclusion

While the work here has focused on the development of e-learning resources usually delivered within a Learning Management System, there are other, complimentary areas currently being researched by the partners in this project, with the aim of using technology to improve the learning experience for students with disabilities. Specifically, research is being undertaken in making lectures accessible, inclusive learning design tools, accessible online assessment and the tools to support the creation, retrieval and re-use of adaptable learning objects. An accessible learning experience depends on flexibility in the support provided, the level and types of training for academic and support staff, and the need to recognise and accommodate wherever possible the needs and preferences of learners.

Many of the resources utilised in the online courses and hands on workshops have been very well received and participants have requested them for awareness raising activities and staff development in their own institutions. Informal feedback and our research indicates that specially designed support resources would be helpful including videos, simulations (that are appropriate to the educational context) and tools that support accessibility checking in various environments. Such resources are now under development as part of the research emanating from this project (Papadopoulos & Pearson, 2006).

Although activities have been evaluated through various methods (an online discussion forum and questionnaire, email questionnaire, and workshop feedback forms), and feedback has been good, there is little evidence to confirm that teaching staff have actually taken the issues on board in long term practice. More research is required to identify the extent to which embedding has taken place and the further support that is required to enable staff to be continuously and consistently inclusive in their e-learning practices.

The key to persuading staff to develop inclusive e-learning practices is by taking a pragmatic and incremental approach. Staff development activities should be designed to motivate academics by convincing them that inclusive practice means improving the learning experience for all students. Training needs to give academics the skills to make immediate changes and there should be a coherent institutional strategy for specialist support for e-learning accessibility.

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Author contact details

Elaine Pearson, University of Teesside, Middlesbrough, Tees Valley, TS13BA, UK. Email: e.pearson@tees.ac.uk.