

Return to SENDA? Implementing accessibility for disabled students in virtual learning environments in UK further and higher education

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Executive summary

Aims

The aim of this research is to investigate the current state of knowledge concerning the accessibility for disabled students of virtual learning environments (VLEs) in UK further education (FE) and higher education (HE) institutions, particularly since the introduction of SENDA – the Special Educational Needs and Disability Act 2001.

The study builds on existing research on the accessibility of the ‘end-product’ (i.e. the VLE course itself) - for example Stiles (2001), Evans and Sutherland (2002). It maps the points along the ‘critical path’ of VLE-based courses where accessibility problems originate, and makes recommendations about ways in which accessibility for UK students using VLEs can be improved.

Methodology

The study combines an extensive literature and web review with an online questionnaire and a series of interviews. Relevant literature is drawn from academic research in the fields of e-learning and of web accessibility, as well as from educational policy and technical guidelines from the educational and commercial sectors.

The online questionnaire elicited information regarding the processes used in FE and HE institutions to create courses delivered via VLEs, including what provision was made for ensuring the accessibility of those materials. The survey was circulated via three UK academic discussion groups with a specific interest in either VLEs or web accessibility (or both) in FE/HE. A number of individuals from four contrasting FE/HE institutions across the UK were also interviewed face to face. The total survey sample was 57.

Definitions and scope

UK further and higher education

Higher education (HE) refers to academic education above A level (and its Scottish equivalent), provided by universities and colleges of higher education, collectively

known as higher education institutions (HEIs). There are approximately 170 higher education institutions in the UK.

Further education (FE) consists of all education after the age of 16, other than higher education. FE courses are mostly technical, vocational and professional training. There are 483 FEIs in the UK.

Virtual learning environments

The UK Joint Information Systems Committee defines a VLE as a place where 'online interactions of various kinds take place between learners and tutors'. VLEs incorporate the following tools and functions in a single software environment:

- teaching materials - for example reading lists, module notes, handouts; also multimedia content such as audio or video
- communication tools –for example e-mail, newsgroups, mailing lists and bulletin/discussion boards
- assessment tools –for example electronic submission of assignments, self-tests, assessed tests such as multiple choice.

Most VLEs also include shared student work group areas, student tools such as web pages, diaries and calendars, and tools for the management and tracking of students –for example password protected areas and logging of student usage of VLE. All this is combined within a single interface –customisable to a certain extent by the educational institution and by individual students.

There are currently approximately 500 VLEs in use by FE and HE institutions in the UK.

Accessibility

There has been a considerable amount of work dedicated to making the web accessible to people with a range of disabilities, including those who have visual impairments, hearing impairments, motor impairments or various forms of learning or language disabilities.

An accessible web page allows users to access it in a format that suits them –for example in audio format, or in large print, or on a coloured background. In order for the disabled user to be able to manipulate the material to their requirements, the 'raw content' must conform to certain accessibility specifications, standards or guidelines. The best-known of these guidelines are produced by the W3C Web Accessibility Initiative. There are also some accessibility guidelines specific to the production of web-based e-learning materials.

SENDA

The Special Educational Needs and Disability Act is in the process of being introduced in the UK. The legislation 'aims to ensure that disabled people have equal opportunities to benefit from, and contribute to the learning and services available in education institutions'. SENDA requires all education institutions:

- to make reasonable adjustments to accommodate the needs of disabled students
- not to treat disabled students less favourably
- to act in an 'anticipatory capacity' (i.e. institutions should not wait until a disabled student asks in order to implement good practice).

Results

The literature and web review and the online survey all found similarly low levels of accessibility in VLEs. The accessibility barriers were within the VLE software itself and within the content.

Aspects of the VLE software shown to be particularly difficult were synchronous communication tools (chat and whiteboard), navigational structure (over-complex frames-based architectures), and assessment procedures. Many respondents pointed to generally poor usability hindering accessibility, so that even if the product was technically accessible to a user with disabilities, it was still too complex to use with any effectiveness or efficiency.

Accessibility barriers within the content were often caused by invalid HTML code being produced by authoring tools used by non-technical authors. A general lack of understanding of the principles of instructional design and the technical issues involved in web accessibility, coupled with a lack of effective content development processes within institutions, led to a poor level of VLE content accessibility. It was also clear that very few institutions made provision for testing VLE courses with students.

Broadly, the following reasons all contributed to inaccessible VLE-based learning:

- a lack of awareness within FE and HE about the needs of disabled students
- a lack of user-centred design processes (on the part of VLE developers and education institutions)
- a lack of knowledge of web technologies on the part of VLE content authors
- too narrow a focus on technical standards compliance at the expense of broader learner-centred design principles
- a general 'skills gap' in the area of instructional design, and
- a lack of strategic leadership within institutions in tackling the overall issue of inclusive learning and teaching.

Principal recommendations

VLE developers

- Adopt user-centred development processes, in particular ensuring that the needs of a broad range of learners are at the heart of the design and development of VLEs.
- Consider developing much simpler, non-frames based VLEs, and stop assuming that a more complex product is a better product.

Technical bodies

- Adopt a more pragmatic approach to guidelines that acknowledges the constraints under which developers operate and the conditions under which the majority of users access the web.
- Produce plain-language, practical and short guidelines that are easy for non-technical authors to assimilate.

National educational institutions

- Further consider the creation of an e-learning conformance authority to monitor and enforce adherence to technical standards, including accessibility standards, in e-learning.
- Continue to take steps to delineate and address the skills gap in e-learning; in particular to support the development of instructional design as a recognised discipline with learner-centred design principles at its heart.

Individual FE and HE institutions

- Recognise the range of skills needed to develop quality e-learning, in particular:
 - consider creating learning development specialist units, responsible for the overall planning and management of e-learning in close collaboration with academic groups
 - support the development of instructional designers within these units.
- Ensure that strategies for information and communication technologies, learning and teaching, and widening participation are joined up and consistent.

FE and HE staff

- Understand the pedagogical underpinning of VLE courses, and define carefully the goals and outcomes of learning experiences that incorporate VLEs.
- Adopt a student-centred approach to creating VLE content by encouraging structured feedback on VLE materials from students, making changes accordingly, and testing new courses with a range of students, including if possible students with disabilities.
- Try to ensure that the perspectives of specialist instructional design and web development staff are adequately represented at the early stages of curriculum design, and that communication between teaching staff, IT specialists and learning technology specialists is open and constructive.

The complete report is available in HTML, Word 2000 and PDF format at <http://www.saradunn.net/VLEproject/index.html>