Working with colleagues to support students whilst in Higher Education is a key part of ESCalate's activity. The following articles show three very different strands of innovative work.

# Understanding and supporting the e-learning experiences of students with disabilities

## Jane Seale

Disabled students at the University of Southampton have been working with researchers to produce an online resource for both students and academics that offers handy hints and tips on technologies and strategies that can be used to make e-learning easier for disabled students. The resource is the result of a two year project called LEXDIS which was funded by JISC, under its learner experience programme.

Using participatory research methods, students were involved in all aspects of the research process; from deciding the research questions to designing the project website (Seale *et al.* 2008a). A key aspect of student participation was the sharing of their technology experiences, and in particular the strategies they have developed to enable them to use a wide range of technologies to support their learning. The students' technology "stories" have been integrated into an online database that can be searched by students and lecturers who may be looking for ideas or information about assistive technologies that students use, along with their strategies to solve some of the issues that arise or applications that students use (by choice or as a course requirement) that may cause difficulties. ▶

*Screenprint of LEXDIS Home Page*
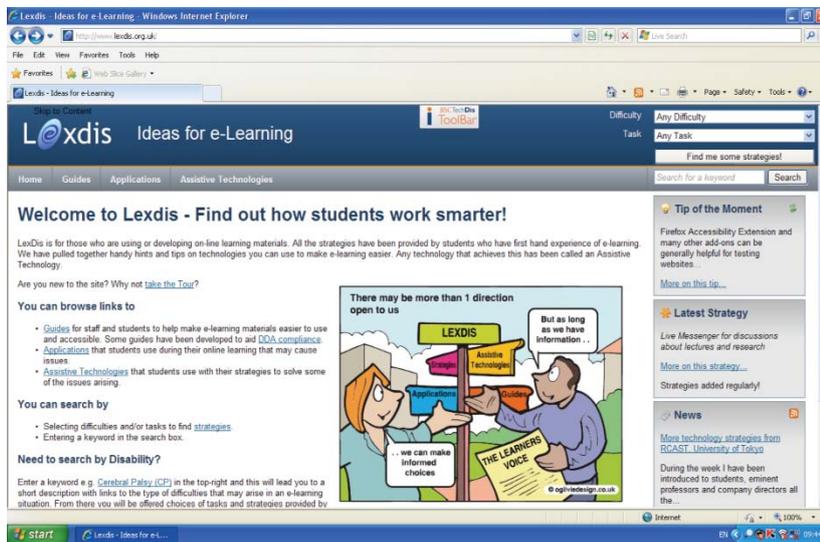


## Digital agility, agency and empowerment

Analysis of the students' technology experiences suggest that disabled students are very digitally "agile", they are extremely familiar with a wide range of technologies and can critically evaluate their strengths and weaknesses in relation to their learning needs; they use a wide range of strategies to enable them to use the technologies to learn effectively and they have relatively high levels of confidence in their own ability to use technologies. In addition, many disabled students have developed a strategic fluency that enables them to make complex decisions about whether or not to use technologies to support their learning. On some occasions, such decisions can involve deciding not to use technology (Seale *et al.* 2008b).

These findings are significant for lecturers and those who work in support services in terms of prompting us to recognise the agency of disabled students in relation to making choices about their technology use as well as to reflect on our assumptions regarding the abilities of disabled students on our courses. The findings relating to digital agility can be used to support an empowerment model of inclusive education and disability support whereby the strengths of disabled students are recognised and the focus is less on remediation and more on supporting learners to pursue their learning goals (Seale *et al.* 2010).

## Hindrances and barriers to successful e-learning and technology use

Despite the apparent digital agility of disabled students, the students in the LEXDIS project did describe instances where their learning had been adversely affected. There were a number of reasons for this:

- Access to appropriate technologies had been hindered or denied
- Inappropriate technologies or pedagogies underpinning technology use had been employed

- Students felt they did not have enough time to learn how to use some of the more complex assistive technologies

A prime example of access being hindered or denied can be illustrated through the following quote from a student who felt strongly that lecturers and universities should be more flexible in their willingness to provide electronic versions of learning materials:

*Having things in electronic format is essential for me to cope with the demands of my course. I would be drowning under a sea of paper, otherwise!!  I do not have the dexterity to manipulate masses of sheets. So paper material is difficult for me to locate, and difficult to display properly when writing [..] I think they (lecturers) should just be aware that physically disabled students may well benefit from electronic resources. They shouldn't automatically assume that disabled students will definitely want things in electronic format. However, they should be aware that it is likely that many will want this [...] There is so much more than lecture notes, as well [...] Some lecturers are pretty good.  They will put up quite a lot in electronic format, but even the good ones, at the moment, they don't put on as much as they realise they could. [...] For example, there is something in the library now that will scan in whole books, and the library said to me: "Oh well, at the moment we only use that for academics".*

Examples that students shared with us, where being required to use a particular technology could be considered practically or pedagogically inappropriate included:

- Requiring students to learn curriculum content by accessing material only available via complex specialist software applications that can be extremely stressful to learn to use, particularly for students with mental health issues.
- Requiring all students to post contributions to an online discussion forum, even though access to the Internet outside of university hours is problematic for some disabled students, depending on where they live.

*The website gets jammed up and crashes. On MSN you can see who's logged on. On there you can't. If you put a message on, you can sit there for 2 hours waiting for a reply. I had to continue to go back to the library. Those who have internet at home can check it all day. But, I went to the library in my pyjamas because it got so late! This is unfair. If you don't communicate on there, you don't pass. The student residence are the ones who don't have the internet. Ours are 40 years old and condemned.*

Examples like this get us to think carefully about what the purpose of higher education is as well as to examine our definitions of inclusive education. For students, higher education should be a challenge; they need to be stretched and facilitated to reach further than they thought they possibly could. However, it is important that lecturers choose the right hurdles with which to challenge students and not to get students to jump unnecessary hurdles that take time and effort but afford no real learning advantage. This is true for all students, but particularly true for many disabled students who are already exerting a great amount of time and energy "managing" their disability and find they have to be very strategic about their learning as a result.

Whilst some resentment exists amongst non-disabled students about the technology that is available to disabled students through their Disabled Students Allowance, evidence from the LEXDIS projects suggests that disabled students do not always feel able to take advantage of the technologies, particularly voice recognition software which can take days to learn how to use:

*… when I got all my software in autumn last year, and they said: "You need to have your training on this" – as you quite rightly have said – I did feel like I was doing 2 courses and that was, frankly, too much. I had to stay with my old bad habits because I just didn't feel I had the time to take out to learn something new to help me. It was a vicious circle, really.*
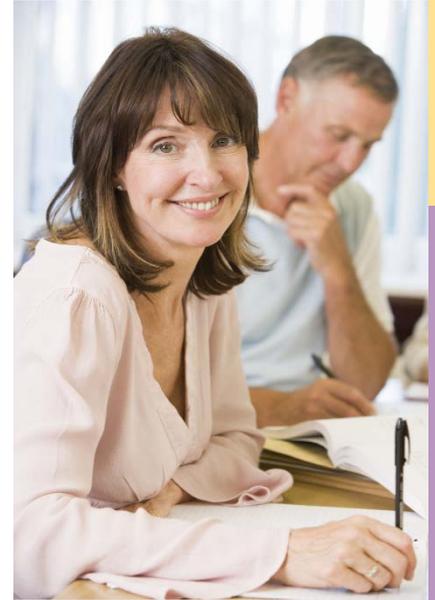
"

**Analysis of the students' technology experiences suggest that disabled students are very digitally "agile"**

"

## Key tips for lecturers on supporting the e-learning of disabled students

The examples given here, as well as the narratives contained within the LEXDIS website, can be used to derive several key tips for lecturers and other academics who are supporting the e-learning of disabled students:

**1. Increase the level of provision for online materials.** Despite the fact that many students comment on issues of accessibility and ease of use of some of the materials online, this method of sharing resources is vital for those who cannot handle paper based materials easily. Scanning and using optical character recognition to cope with paper based materials takes time and the results are not always sufficiently accurate for easy reading with text to speech or Braille translation.

**2. Think carefully about the impact on disabled students of a huge variation in the "look and feel" of modules or courses provided via Virtual Learning Environments.** Offering teaching staff the ability to adapt the virtual learning to their own personal specifications may be causing navigational concerns for students who have to spend longer on task to find items and work within the various different VLE courses they are required to use, due to differences and inconsistencies in structure and organisation across courses.

**3. Increase the level of awareness for the use of alternative formats.** There remains a lack of awareness regarding the impact that inaccessible teaching and learning resources can have on disabled students. This does not mean that innovative teaching materials using interactive online applications should be avoided but rather that alternatives may need to be on offer that can provide a similar learning outcome. Even the most basic PDFs and PowerPoints can also cause problems if they cannot be read on the screen with speech output or accessed via the keyboard.

**4. Be prepared to recognise the digital literacy skills that many disabled students have** and build on these by providing more opportunities for improved learning outcomes through an increased choice of multimedia tools and resources.

**5. Design and develop learning opportunities and support systems that recognise the significant factors that influence disabled students' use of technology, notably time.** All disabled learners cite 'TIME' as a real issue that influences their decisions about whether to use technology and whether to seek support to use technology. 'Just-in-time' learning seems to be the most appreciated type of training. When students have a problem, is when they want to learn the solution. This needs to be taken into account when thinking about library training, VLE and other technology training sessions.

More information about the project and further guidance material can be found at: www.lexdis.org

## References

Seale, J., Draffan, E. A. & Wald, M. (2010) Digital agility and digital decision-making: conceptualising digital inclusion in the context of disabled learners in higher education. Studies in Higher Education, 35 (4), 445 - 461.

Seale, J., Draffan, E.A. & Wald, M. (2008a). An evaluation of the use of participatory methods in exploring disabled learners' experiences of e-learning. LEXDIS Methodology Report to JISC. University of Southampton. www.lexdis.ecs.soton.ac.uk\project\reports

Seale, J., Draffan, E.A, & Wald, M. (2008b). Exploring disabled learners' experiences of learning. LEXDIS Final Report to JISC. University of Southampton. www.lexdis.ecs.soton.ac.uk\project\media\LEXDIS_ProjectReport_Dec08final.doc

**Jane Seale**
University of Plymouth

Jane Seale is Professor of Education at the University of Plymouth. Jane's teaching and research interests lie at the intersections between disability, technology and education. Her work focuses in particular on the factors that influence or sustain the digital exclusion of disabled learners. Jane is currently Digital Inclusion consultant to the ESRC funded Technology Enhanced Learning (TEL) Research Programme where she is working to synthesise and update current research in the field of Digital Inclusion. Jane worked on the LEXDIS project with colleagues Mike Wald and E.A. Draffan from the Electronics and Computer Science department at the University of Southampton.