

Disabled students and delivery of learning support material through a VLE

Dr Barbara Newland, Juliette Pavey and Victoria Boyd

Use of Virtual Learning Environments (VLEs) can be adapted and extended to allow a more inclusive learning and teaching experience for all students and provide particular support for disabled students. This guideline presents key issues related to delivering learning support materials through a VLE, based on perspectives of disabled students and academic staff. Pedagogical, practical and strategic implications have been identified and set in context within discussion and action points to encourage extended reflection on individual, departmental and institutional practice.

Learning support materials

The term learning support materials refers to the online delivery of Word documents, PowerPoint presentations, PDF, web resources, multimedia and other forms of documentation in support of face-to-face sessions. When learning support materials are delivered through a VLE, students benefit from having a central location for all resources as well as access to digital materials in a variety of flexible formats which can be adapted to suit their individual needs. Remote access to learning support materials means that students also have the ability to engage with materials at a time and place convenient to them, as they are not reliant on contact hours alone.

“If I knew I could print it off later and could concentrate on what they were saying or if I had it in front of me and could annotate it ...then it would be a lot easier, and that's for everyone, not just for people with learning difficulties.”

ALERT Student

Recommendations

Pedagogical

- Make materials available a couple of days or more in advance of a teaching session, allowing students time to access the resources, print (if necessary) and read them:
 - Provides students with the opportunity to familiarise themselves with content in preparation for the face-to-face session.
 - Grouping learning support materials by topic allows continuity between lectures and helps students to develop understanding of relationships between concepts.

Practical

- Think about how the materials will be used by the students:
 - Which format to use (Word, PowerPoint, PDF, web resources, multimedia, etc)
 - When materials are to be made available (how long before or after lecture)
- Think about the re-usability of materials
 - Effort involved in the creation and provision of initial materials can save time in the future

Strategic

- Liase with colleagues to establish:
 - A policy about what materials will be available and when
 - A communally agreed consistent appearance and organisation of materials.

Pedagogical

Enhancing learning by developing understanding

The provision of learning support materials in advance of a lecture helps support all students (Doyle and Robson, 2002). By making materials available, students have the opportunity to become familiar not only with terminology but also to start to understand concepts. In a face-to-face session, students can listen more carefully and build on their understanding, without the need to take detailed notes. This encourages deep learning, in which a student is actively transforming the learning material in the process of making sense of it (Marton, Hounsell and Entwistle, 1984).

The five stages of Bigg's SOLO taxonomy (Biggs and Collis, 1982) can also be applied here, as exponential engagement with materials is allowed to occur. The SOLO taxonomy hinges on the concept that active knowledge construction takes place through new levels of learning embracing previous levels, and so creating a logical and progressive understanding. These stages evolve from a pre-structural level, where students accrue disparate, unconnected information, through to unistructural, multistructural, and relational stages where gradually more meaningful relationships between core pieces of information are formed, and finally culminate in the achievement of the extended abstract level, where students can apply and transfer their knowledge of a subject to other domains.

“...before lectures I can print out the notes. I can follow because I'm not copying down, and I can then annotate my notes ...while concentrating on what he or she (the lecturer) is saying...”

ALERT Student

“I guess the fact that students have their course materials provided digitally, it gives them the opportunity to enhance the documents that are provided in whatever way they need to for whatever disability they have.”

ALERT Staff

VLE recommendation: enhance student learning by making lecture support materials available in advance of a face-to-face session to afford students preparation time and familiarisation with concepts.

Independence and equality

For many disabled students note-taking within lectures is a practical problem, and their dependence on classmates has repercussions in terms of their confidence and independence. The use of interactive technology, however, has been proven to improve independence and motivation (Hardy, 1999) as well as raising self-esteem and developing problem solving, thinking and communication skills (Strack, 1995).

Some of the benefits that disabled students experience as a result of advance availability of learning support materials also resonates with other groups of students who may have problems with the note taking process, such as international students. Some international students, for whom English is not a first language, struggle with note taking and new vocabulary (Beaven, 1998). For these students, having lecture support material available in advance of the face to face session provides support for preparation, reference and customisation of notes.

“I had to rely on goodwill and be grateful for being able to learn whereas everybody else was entitled to learn straight away, and it was a disadvantage, and I wasn't encouraged to make noise about it or ask for any help.”

ALERT Student

VLE recommendation: allow each student to customise digital materials to meet their own needs by delivering lecture support materials through a VLE.

Secondary learning

Many disabled students have to rely on peers to either take or duplicate notes, which often imposes secondary learning on them. By using another student's notes, disabled students are essentially interacting with materials which have undergone interpretation from the student who took the notes. They are exposed to another student's perception which will then impact upon their own interpretation of the materials. Having a pre-prepared set of learning support materials offers disabled students the opportunity to customise their notes as necessary, without interpretation by a third party affecting the student's experience.

"If I knew that my lecture resources were going to be online before the lecture, that would be the best thing that could happen for me, cos then I could just print them off and annotate them."

ALERT Student

VLE recommendation: encourage independence by ensuring students know how to access class materials and where pertinent information is kept within the VLE.

Reflection, revision and structured learning

A structured set of personalised learning support materials is an invaluable revision resource. Structured materials provide students with a framework of the concepts and detail integral to their subject. Such material is at the core of constructive alignment (Biggs, 1999), which states that students build meaning from their experiences, which are then aligned with explicit knowledge in their education.

Having this core provides all students with the same initial material, and the opportunity to annotate and append this information in the way that is most meaningful to them. This illustrates the provision of scaffolding, an element of the constructivist model where explicit links between old and new learning are made (Cottrell, 2001).

"...when you read back through my notes you can tell which lecture notes came up before and which ones didn't because the other ones are so much more disorganised compared to the ones which have been done before hand."

ALERT Student

VLE recommendation: allow students to look retrospectively at what they have studied over a module by archiving learning support materials.

Practical

Timing

The provision of learning support materials **before** a face-to-face session offers a number of benefits to disabled students. In addition, it is of even more value if the information is available sufficiently in advance of the lecture to enable the students to read and familiarise themselves with the information before the lecture. This ensures maximum usability and inclusivity. The VLE itself allows all material to be stored and released at a specified time, aiding with planning and convenience.

"...they'll put it on at 10 o'clock when you've got a lecture at 11 and had a lecture at 9 so you couldn't actually print it before hand..."

ALERT Student

VLE recommendation: put all materials in the VLE at the beginning of a course with timed release.

Attendance

Some academics are concerned that students may no longer attend lectures if notes are provided in advance, that if lecture support materials are made available, students will feel that they have sufficient material on a lecture topic to warrant non-attendance at face-to-face sessions.

A recent study of the Durham VLE showed that only 2% of students state that advance access to learning support materials would be the reason for them not attending lectures (Newland, 2004).

“ I wouldn't say that you didn't need to attend lectures just because you have the notes ...the lecture is always going to improve on them, always going to say a bit more about them.”

ALERT Student

VLE recommendation: promote blended learning by using the VLE to support face-to-face sessions and vice versa.

Scheduling and pace

Having materials available in advance of a lecture can be extended to allow the provision of a block of resources that students can use in anticipation of a series of lectures. This may be of particular use where lecture themes are interlinked, and where knowledge from prior sessions is required by a student in order to understand the premise of future sessions. This further enhances the “on demand” learning aspect of VLE material delivery, as it allows students to not only work at their own pace but to be able to plan ahead.

“It's even better if they can put several lots (of notes) on at once rather than just the one for that lecture...you can print them all off in one go and file them and you've got them ready for the next six lectures.”

ALERT Student

VLE recommendation: encourage students to reflect on how content interlinks and promote extended reading, research and use of materials by making several sets of learning support materials available at one time.

Reusability and interoperability

Learning support materials in the form of Word documents, PowerPoint slides, PDF, web resources, animations, graphics, video and audio files are all examples of digital materials. Digital materials have enormous potential for reuse and further development for future teaching (RELOAD, 2004). Extensive research has been undertaken in the area of the pedagogic value of digital media (Laurillard, 2002) and bespoke lecture support materials particular to a specified course can be reused as components and in their entirety.

“... you get the references and you can put them straight on to the online journal search thing and find the articles and get them there and then, and so it's really useful.”

ALERT Student

VLE recommendation: link library and web resources to course materials.

Format

Students are able to customise digital materials but this can often be a laborious task. Students have a wide diversity of preferences, thus if materials are created in such a way that allows easy customisation or provides information in a variety of formats to suit different needs (such as a text equivalent of a PowerPoint presentation) immediate use of the materials will be much easier.

Aspects to consider when deciding on format include logical structure of documentation, what software to use (eg Word, PowerPoint, PDF, web resources) and how to most effectively use it, font and size of text, use of illustrative media and use of colour. Using a clear, sans serif font (eg. Arial) at a readable size (eg. 11pt) in text based documents provides a good basis for clear information display.

“Some of the lecturers put stuff up in Word and that's kind of slide size, point 18 or something, so that's quite time consuming to go through it all, change the size and re-shuffle it on the pages so it fits.”

ALERT Student

VLE recommendation: make sure all documents are available in a flexible format that students can customise to their needs, e.g. For non-text based materials, provide a text alternative by way of explanation.

Strategic

Making informed strategic decisions

Departments/schools can make strategic decisions about their use of the VLE in a number of ways:

- Develop a departmental policy on the level of use of the VLE across all modules/units.
- Work collaboratively to establish a common and consistent menu system and appearance.
- If any features of a VLE are not being used, turn them off if possible. This minimised the potential for superfluous buttons and empty content areas.

“...one of the most commonly occurring (evaluation comments) is 'some other modules have got better support than this one'...that tends to motivate staff to improve that part of the course, because that is something students recognise as being a helpful part of their learning.”

ALERT Staff

VLE recommendation: establish effective and consistent methods of VLE use through liaison with your departmental colleagues based on considered use and student feedback.

Consistency

Disabled students benefit from consistent organisation of lecture support materials. For students with slow reading speeds or concentration problems, having an organised, logical and constant arrangement of materials is of great benefit in providing a standardised environment for the delivery of learning support materials.

VLEs can help to support consistency, as all courses that use them can have a similar structure. By adopting a collaborative approach to VLE use, structure and design, a framework can be established for consistent delivery of materials.

Additionally, if one VLE is used across a School or institution, rather than several, students do not have to learn different methods of navigation and can become accustomed to one interface and way of working.

“I think each one has a different layout of the order of the buttons and what actually is there, so I sit there for ages just looking, thinking which one do I want...”

ALERT Student

VLE recommendation: consider requirements of individual learning objectives in designing inclusive and consistent VLE course appearances and navigation.

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Discussion / reflection points

Based on the issues considered, below are some discussion points to encourage reflection on existing practice and provision.

Pedagogical

- Why do you think making learning support materials available in advance of a lecture helps disabled students' learning?
- What kind of positive effect do you feel provision of materials has on their learning?

Practical

- How do you format your learning support materials for delivery through a VLE?
- How do you decide which tool/piece of software to use to produce the material?
- When do you make your learning support materials available through the VLE? What is your reasoning behind this?
- Do you use a time release facility for delivering your materials? Why or why not?

Strategic

- Do you have a departmental policy on use of learning support materials within your VLE?
- Do you work with colleagues in producing materials?

Action points

- Consult your departmental and university policy on strategic use of a VLE.
- Make contact with your disabled students' support unit, and establish what VLE support is provided.
- Review the extent to which the VLE recommendations within these guidelines are already embedded within your own use of a VLE
- Explore the other guidelines at the ALERT website – www.dur.ac.uk/alert