

Disabled students and VLEs – Introduction

Dr Barbara Newland, Juliette Pavey and Victoria Boyd

Introduction

The aim of the ALERT (Accessibility in Learning Environments and Related Technologies) project was to examine the role of a VLE (Virtual Learning Environment) in disabled students' attainment of pedagogical objectives. The project was based on a series of case studies with disabled students and academic staff, and guidelines were developed from their opinions, comments and observations. The project ran over a two year period, from July 2003 to July 2005.

ALERT was a Higher Education Funding Council for England (HEFCE) funded project under the Strand 2 initiative for 'Improving Provision for Disabled Students'. The project was run between the Universities of Durham and Bournemouth and also supported by the National Disability Team (NDT).

The ALERT guidelines are targeted at members of academic staff, student support units and staff development and support professionals. These groups include learning technologists and disability support staff. The guidelines aim to promote discussion, reflection and where appropriate modification of existing practice and provision.

Each of the guidelines is divided into sections relating to pedagogical, practical and strategic considerations of VLE use.

Background

ALERT was primarily concerned with how individual and institutional use of a VLE can pedagogically impact upon disabled students' experience, and in particular, support the achievement of learning outcomes.

Many studies to date have focussed largely on technical aspects of VLE use and how these affect the educational experience of disabled students. VLE software companies, such as Blackboard and WebCT, have high profile accessibility policies which ensure that their products are in compliance with international legislation, such as SENDA in the UK, Section 508 in the US and the Disability Services Act in Australia.

Though the focus of the guidelines is the pedagogical support of disabled students, the recommendations that are made will apply to all students. Based on the principles of accessibility and universal design, the guidelines promote a considered approach to the application of VLE capabilities, and thus the establishment a more diverse and inclusive learning experience and adaptive learning materials.

What is a VLE?

The term VLE refers to "the 'online' interactions of various kinds which take place between learners and tutors," (JISC, 2005). A VLE allows a flexible approach to learning and teaching through access to resources, communication between both lecturers and students as well as between students, and methods of assessment. This wide range of capabilities enables the provision of an environment for a rich online learning experience.

Why VLEs and disabled students?

Students benefit from the capabilities of a VLE in a variety of ways, including the flexibility afforded to them through the digital delivery of learning support materials, the ability to take part in various types of online communication and the learning opportunities offered by online assessment. Advance provision of lecture support materials, for example, enables students to prepare for face-to-face sessions by familiarising themselves with terminology, vocabulary and

alert – Accessibility in Learning Environments and Related Technologies

concepts. This is particularly helpful for some disabled students who have problems with reading or writing speeds, as a skeletal structure of the lecture will afford them more time to listen and understand (please see ALERT guideline 'Disabled students and VLEs – Learning support materials' for further information).

How to use the guidelines

Main body

The format of the guidelines has been designed to present first hand experiences of both staff and students and align these within the context of research literature and practice to give a holistic overview of effective VLE use. The quotes and context comprise the body of the guidelines.

Recommendations

On the first page of each guideline, the 'Recommendations' box summarises the main points from the pedagogical, practical and strategic areas. If a member of staff quickly picks up a copy of a guideline, the most pertinent points are immediately available. These are expanded and developed in the main body text.

Quotes

Each of the quotes used has been specifically chosen to complement the accompanying text. This illustration of first hand experience provides a personal aspect to the guidelines, reflecting how different issues have affected students and staff. If you are viewing the guidelines in colour, student quotes are presented in blue boxes and staff quotes in white boxes with a broken edge.

VLE recommendations

Throughout the guidelines are yellow 'VLE Recommendation' boxes. These are suggestions of ways in which practice can be adapted to impact upon the topic which has been discussed in the preceding text.

Discussion / Reflection points

These questions are designed to prompt and promote individual and collaborative reflection on what had been presented in the guideline and how it might impact upon existing practice. Again, topics are divided into pedagogical, practical and strategic areas, and though no direct answers are given within the text, it is hope that enough background information is provided to form an effective basis for discussion.

Action points

The 'Action points' give examples of further activity which may benefit adapting existing practice to be more inclusive, and refer the reader to resources on the ALERT website. Encouragement is also given to forge links, if not already in place, with other specialists in student support, such as learning support units or disability support services, to create an improved and extended community of practice.

The guidelines are available at the ALERT website:

<http://www.dur.ac.uk/alert>

Disabled students and holistic use of a VLE

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 use of 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.

A considered approach to VLE use

A VLE is an invaluable tool in learning and teaching and can provide a wealth of opportunities for access to a wide range of learning support materials and tools. Vital to the quality of the students learning experience, however, is the way in which staff utilize the environment. A considered approach to VLE use ensures provision for a greater diversity of students and appropriate implementation of learning resources can result in a repository of re-usable materials, discussion topics and quizzes, and more effective and evenly distributed staff time.

“You feel supported, and you feel like, if your notes aren't great, you can get better ones there, and for revision it's just gonna be so much easier. “

ALERT Student

Recommendations

Pedagogical

- Highlight to students how a VLE can complement face-to-face sessions. This can be achieved through the adoption of blended learning, where a combination of face-to-face and online learning is used.
- Encourage use by making tasks highly interactive and thus allowing students to assume independence and take a level of ownership of activities and learning support materials.

Practical

- Promote use of the VLE in face-to-face sessions, so students are aware of what materials are available and what is expected of them.
- Promote a consistent appearance and navigation structure. Make decisions about which tools and areas are appropriate and those which are not on the VLE interface. This will involve deciding which functions should be available to students, eg. make sure no empty folders or dead links appear.

Strategic

- Encourage use of the VLE by other academic and service departments, to foster a multifaceted support community online. Such a community may include disability support units, sports or recreational societies or careers services.
- Work collaboratively with colleagues to ensure a high level of consistency between modules. This will impact on students' expectations and be of help to students with poor organisational skills.
- Conduct an overview of departmental use, to promote consistency and staggered use of interactive tools so students experience and can contribute to a balanced programme.

Pedagogical

Support of face-to-face

Students believe that the use of a VLE as a repository for learning support materials or as an area in which to engage in interactive learning activities enhances the face-to-face learning experience (ALERT, 2004). Although it is clear that students do not feel that the VLE as a sole environment could replace contact with tutors, it is invaluable as a convenient, flexible and dependable resource for lecture support materials and interactive learning activities. This is particularly relevant to those students with a physical impairment who might be restricted in being able to engage in face-to-face interactions.

Laurillard states that VLEs can provide the "context of delivery" which enables students to achieve the maximum benefit from their study. This is vital as "the most stunning educational materials ever developed will fail to teach if the context of delivery fails" (Laurillard, 2002).

"...our tutor always tells us our work in the tutorial, but also sends it out again (via the VLE), you can always ask him questions, he gets straight back to you..."

ALERT Student

"...it's absolutely, fundamentally a supporting mechanism, and not one that necessarily drives the way in which I deliver my teaching."

ALERT Staff

VLE recommendation: integrate the use of the VLE within the curriculum by including references to its capabilities in face-to-face sessions.

Collaborative work, community and peer support

Encouraging students to work together fosters a sense of community and shared problem solving. Students can benefit from collaborative working in a number of ways and enable them to learn about VLE use through shared experience. This is particularly beneficial for those students who experience feelings of isolation because of their disability, the development of an online community offers them flexible access to peer support. Peer support groups, which either meet in person or online, can also help students to become familiar with the capabilities of the software. Such an approach illustrates Mason's Integrated Model of VLE use (Mason, 1998), in which student centred, collaborative learning is key.

"I think other students have been more of a help than the technical support or the lecturers as far as (troubleshooting using the VLE) goes."

ALERT Student

VLE recommendation: encourage students to work collaboratively by establishing online groups. Self-selection and assigning roles within these groups can be effective ways of encouraging students to participate.

Encouraging exploration

By making students aware in face-to-face sessions of what materials are available for their course through the VLE, they can be encouraged to interact with the environment and further their independent study. In giving students the confidence to use the VLE at a basic level, in communal or shared exercises, individual independent use can be promoted. VLE use can afford students greater control over their learning experiences (Eurelings et al, 1999), which is especially important for disabled students with a diversity of needs in terms of material delivery, format and timing.

“...if the benefits (of the VLE) are stressed enough, then I think it is down, eventually, to the individual to make the effort and to actually start searching ...”

ALERT Student

VLE recommendation: build students' confidence by demonstrating VLE tools in face-to-face sessions. This visualisation will give students an overview of potential uses.

Discipline specific appropriate use

The various tools within a VLE offer a high degree of customisation and the potential to deliver a course tailored to the needs of the discipline. For example, students enrolled on a Law course might benefit more from the use of discussion boards to moot topics whilst the use of multiple choice or short answer questions in a quiz may lend itself better to subjects in the scientific discipline, such as Chemistry. There may be problems in the reproduction of symbols of scientific notation, virtual whiteboard tools in synchronous discussion areas can be used for clarification.

“...an online quiz just isn't (useful) in Law. I suppose the physicists or mathematicians might find them useful. ”

ALERT Student

For more traditional subjects like Law, a VLE can ease the physical burden on those students with mobility problems by providing reading lists and digital documents in the place of heavy texts.

VLE recommendation: promote a more accessible learning experience by considered use of the VLE e.g. provide reading lists or announcements to assist students with mobility impairments or promote use of discussion boards for students who lack confidence in face-to-face sessions.

Practical

Simplicity of interface

Though the capabilities of the VLE are numerous, many of the features may not be appropriate. By turning off activity areas or unnecessary buttons, the interface is made clearer and the content more obvious to students. Unused areas and tools of the VLE can lead to frustration and demotivation of students. Where “shells” of courses are automatically created for each module in a VLE, but not actually used to store content, the potential exists for students to be enrolled in essentially empty content areas.

“...there may be tonnes of important stuff that I've missed because I've never had the time to go through every one of my courses clicking on buttons.”

ALERT Student

VLE recommendation: keep navigation obvious, intuitive and simple and ensure content is relevant.

Consistency

Keeping a uniform appearance to all modules will help students recognise, remember and plan their use of the VLE. Students with memory or concentration problems, slow reading speeds, dyslexia or dyspraxia benefit from having resources in a defined and constant space. This impacts on both navigation and appearance within the VLE. A consistent appearance and structure helps all students (Cann, 2004).

“...it's taken me a lot of time just to find my way round a given module. And there's a very poor consistency between modules...to the way it's laid out...”

ALERT Student

VLE recommendation: try to ensure that navigation, appearance and the organisation of information are similar across courses.

Awareness and training

A major consideration in extending use of a VLE is awareness of its capabilities and provision of training. Naturally these requirements will differ considerably for staff and students, but an ongoing and visible support service is vital in ensuring confidence in users. Whilst many students can see the potential applicability of a number of tools in the VLE, unless they have seen it in practice (where relevant), they may be unable to apply a valid learning scenario. For staff, it is vital to consider the flexibility that the VLE allows in designing courses within it, and to reflect this in the materials they produce (De Boer and Collis, 2005).

“...certainly refresher courses and introductory courses would have been more helpful. And also I think lecturers ...really stressing the need to get online and what is online and to use it as best we can...”

ALERT Student

VLE recommendation: establish inductions for staff and students, and regular sessions thereafter, through liaison with your IT department or technical support.

Strategic

Extended community

Most students have recreational, pastoral or academic related bodies of which they are members in addition to belonging to an academic department. By having a presence for these services or groups in the VLE, students can access a more extended variety of support information, announcements and communication facilities. This is of particular relevance to disabled students, who can keep informed of support activity of the disability support service in the same virtual location as their academic support material.

“I think the disability services should have one (a course area in the VLE) so notices could come on there rather than in your inbox... it would be a good way of incorporating that - keeping it all together.”

ALERT Student

VLE recommendation: provide an extended community for students through liaison with student support bodies such as disability support services, and also pastoral and recreational organisations. In so doing, much of their learning support and recreational material can be made available from one location.

Departmental /Institutional overview

Conducting a departmental or institutional overview can highlight trends in use of a VLE by academic staff and develop awareness as to the expectations and demands placed on students. Working strategically to conduct an audit of tools used and timescales adhered to will underscore who is using the VLE, in what way and with what objectives. Ascertaining when different discussion boards, for example, are run within a term can help in scheduling interactive exercises and consequently enable students to contribute equally to a number of tasks and experience a more balanced workload. Such an overview or audit may also be useful in establishing communities of practice and support networks in championing innovative and engaging use of the VLE, and promote increased use as a flexible learning of the VLE as an “universal utility” (DfES, 2005).

VLE recommendation: conduct a departmental overview of how the VLE is being used and what tools best support learning objectives. Not only will this enable peer staff to share practice, but also give an illustration of which different activities students are taking part in on a larger scale.

References

- ALERT project, available at www.dur.ac.uk/alert, last accessed July 05
- Cann, A., 2004, in Assinder, S., Education & Training Group Symposium, Trinity College, Dublin, September 2004, available at http://www.socgenmicrobiol.org.uk/pubs/micro_today/pdf/110411.pdf, last accessed July 05
- De Boer, W. and Collis, B., Becoming more systematic about flexible learning: beyond time and distance, ALT-J, Research in Learning Technology, Vol 13, No 1
- DfES, 2005, Harnessing technology: Transforming learning and children's services, DfES e-Strategy, available from <http://www.dfes.gov.uk/publications/e-strategy>, last accessed July 05
- Eurelings, A., Gastkemper, F., Kommers, P., Lewis, R., Van Meel, R., & Melief, B., 1999, Integrating information & communication technology in Higher Education, Kluwer, Deventer, The Netherlands
- Laurillard, D., 2002, Rethinking university teaching : a conversational framework for the effective use of learning technologies, Second edition, RoutledgeFalmer, London, New York
- Mason, R., 1998, Models of online courses, ALN Magazine, Vol. 2, No. 2., http://www.aln.org/alnweb/magazine/vol2_issue2/Masonfinal.htm, last accessed July 05

Discussion / reflection points

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

Pedagogical

- Which aspects of the student experience do you think drive student expectations of how the VLE is used?
- In what ways would you use the VLE to extend learning activity in face-to-face sessions?
- What aspects of the nature of your academic discipline do you take into account in your use of the VLE?

Practical

- Are you more likely to turn off unnecessary features or leave all possible content areas available?

Strategic

- Do you have an agreed departmental / institutional strategy on what features of the VLE will be used?
- How are decisions about which VLE components are appropriate made?

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 or may be necessary.
- 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

Disabled students and delivery of learning support material through a VLE

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.

References

- Beaven, M., Calderisi, M. and Tantral, P., 1998, Barriers to learning experienced by Asian students in American Accounting classes, from proceedings of American Accounting Association Mid-Atlantic Regional Meeting, <http://www.vmaps.net/barriers.html>, last accessed July 05
- Biggs, J. and Collis, K., 1982, Evaluating the quality of learning: the SOLO taxonomy, Academic Press, New York
- Biggs, J., 1999, Teaching for quality learning at University, SRHE and Open University Press, Buckingham
- Cottrell, S., 2001, Teaching study skills and supported learning, Palgrave, New York
- Doyle, C. and Robson, K. (Eds Ball, S. and Campy, D.), 2002, Accessible curricula: good practice for all, UWIC Press, Cardiff
- Hardy, C., Raising Self Esteem, in Blamires, M. (Ed), 1999, Enabling technology for inclusion, Paul Chapman Publishing Ltd, London
- Marton, F., Hounsell, D., and Entwistle, N., 1984, The experience of learning, Scottish Academic Press, Edinburgh
- Laurillard, D., 2002, Rethinking University teaching : a conversational framework for the effective use of learning technologies, Second edition, RoutledgeFalmer, London, New York
- Newland, B., Newton, A., Pavey, J., Murray, M. and Boardman, K., 2004, VLE Longitudinal Report, duo (Durham University Online) 2001 - 2003, University of Durham, Durham RELOAD Project, 2004, <http://www.reload.ac.uk>, last accessed July 05
- Strack, G., Curriculum constraints and opportunities, in Tagg, B. (Ed), 1995, Developing a whole school IT policy, Pitmans, London

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

Disabled students and asynchronous communication tools in a VLE

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 the use of asynchronous communication tools in 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.

Asynchronous communication tools

Asynchronous communication tools, such as discussion boards, allow individuals to post questions, responses or comments online. Other members of the same discussion board may read that question/comment, and respond with their own remarks over time. Conversations are grouped within forums as threads and contain a main initial posting and all related replies. Students can take part at any time and any place that is convenient for them.

“You can learn more because you can develop your ideas (on discussion boards). “

ALERT Student

Recommendations

Pedagogical

- Support the use of discussion boards to facilitate discussions beyond classroom time, to encourage extended debate and sharing of ideas.
- Consider allowing anonymous contributions. This encourages postings by all students, as they feel able to participate in an equal environment.
- Encourage access by students to the archives of earlier discussions for the purposes of study and revision.

Practical

- Take an active role in encouraging and guiding discussions. This will ensure more productive participation and a higher number of students engaging with the topics under discussion.
- Provide clear guidelines as to the role of the student and tutor, for example, frequency of moderation of the discussion by the tutor and expected contributions from the students.

Strategic

- Think about your use of discussion boards across modules and talk to colleagues, and/or develop a departmental/school policy about their use. This will enable effective scheduling of interactive activities and allow students to contribute to a variety of tasks within a balanced programme.

Pedagogical

Enhancing understanding and learning

For some students with disabilities being given access to a medium for extended peer and tutor communication is valued as an additional support mechanism. Use of discussion boards can be instrumental in clarifying misunderstood concepts, developing ideas and themes and synthesising ideas between student and tutor, and student and student. Tutors can use discussion boards to engage students in peer to peer sharing and dissemination of knowledge, and the students themselves can begin to respond to each other even without intervention from the tutor.

“When I get to know it (the discussion board) a bit better...it would be very much a learning tool, it will be something there as a means of support.”

ALERT Student

VLE recommendation: encourage reflection by re-using discussion forums.

Equality

For many students, not just students with disabilities, online discussion can facilitate in establishing an environment in which they feel comfortable to exchange information and ideas. This enables each student to participate and contribute to discussion without reservations of being identified or appearing to ask inappropriate questions. Burgstahler points out that “the removal of social cues and social distinctions like disability, race, and facial expression through text-only communication can make even shy people feel more confident about communicating with others,” (Burgstahler, 1997)

“About 80% of students put anonymous posts on and so do we sometimes, just to move discussions along, with a kind of pertinent question or something.”

ALERT Staff

VLE recommendation: allow anonymous participation to encourage less confident students to participate.

Confidence

Although to a large extent discussion that takes place online involves active participation, some passive engagement and listening also occurs, sometimes referred to as “lurking”. Lurking may raise issues of concern when the purpose of the discussion is to include all students, to foster a community and encourage peer-to-peer discussion. However, not all lurking should be associated with negative connotations (Salmon, 2000). Lurkers can also gain a valuable online learning experience by reading and learning from others’ contributions and in so doing build their confidence to contribute to future sessions. Online interaction in a variety of learning scenarios can “re-engage the unmotivated learner, and bring an authentic and challenging task within their grasp,” (DfES, 2005).

“The main use I get out of discussion boards is to see what other people put on and if I’m stuck I’ll note what other people have said, and if I’m really stuck I’ll ask a question. I’m not so interactive, I just sort of look at it and take it on board.”

ALERT Student

VLE recommendation: accept that not all students will post to discussion boards, but may still be making use of them through passive interaction.

Reflection and revision

Archiving of asynchronous discussions within the VLE is a valuable tool for optimising the use for the purpose of reflection or revision.

Discussion boards can also be used to provide information about assessments, such as exams, and to answer any specific questions. This ensures that all students have access to the same information, giving a greater sense of equality. Archives of topics that have been previously discussed act as a productive point of reference for both staff and students in outlining questions, responses and comments that have already been raised. Students can view the archive to search for responses to common questions before contacting the tutor.

“At the end of the discussion everyone can print off the notes that they’ve discussed and then use those as a basis for their revision.”

ALERT Student

VLE recommendation: clarify how discussion boards will be used for the delivery of assessment related information to avoid confusion with use of assessment tools within the VLE.

Inclusion

For some students with disabilities, especially those restricted by physical impairments, learning can be an isolating experience. Online learning and discussion can generate an autonomous learning community manifested through formal and informal exchanges among students and between tutor and students.

Online tutoring, mentoring and peer-to-peer exchanges can become a powerful mechanism for supporting learners with disabilities. One approach to successfully integrating isolated students into academic environments is to help create informal peer support groups and friendships (Burgstahler, 1997).

“I see making postings on discussion boards useful because you can give everybody the same deal.”

ALERT Staff

VLE recommendation: encourage peer support groups by establishing smaller discussion board groups for informal interaction between students.

Practical

Convenience and flexibility

Implementing asynchronous discussion in teaching offers students the flexibility to access information and support for learning in a time and place convenient to them. This is particularly important for students with physical disabilities who may not be able to easily access a particular location to participate in face-to-face discussions. It provides them with an alternative environment where they have access to discussion with tutors and other students at their own convenience. It can also extend discussion beyond regular class time to allow for more in-depth reflection and comments.

“In terms of mobility it helps...obviously, you can access the discussion boards...at home, rather than walking.”

ALERT Student

Discussion boards can promote a sense of belonging to a community for those who may be housebound (Debenham, 2001). A sense of equality also emerges when students post a particular question to the discussion board, they know that they all have access to the same response and are receiving the same information.

VLE recommendation: to encourage students to extend classroom discussions, establish lecture topic specific threads.

Placements/year abroad

Discussion boards are useful for both students and staff while students are on placements or a year abroad. They can provide a mechanism for reporting back issues and observations, limiting feelings of isolation and helping students and tutors to keep in touch. This may be the only way students can interact as a group therefore it facilitates a supportive learning environment.

“...discussion boards allow the lecturers to be involved as well and to help solve our problems, or what queries that we've got.”

ALERT Student

Discussion boards set up to support those students studying abroad or in a work placement can assist by providing “up-to-date information, offering advice and offering support,” (Griffiths, 2003), which may not be otherwise so readily or conveniently available.

VLE recommendation: use bespoke discussion boards to support placements and study external to face-to-face sessions. This gives students a central point of contact for tutors and other students in their cohort.

Participaion

As with face-to-face interactions, certain students will be more participative in an online environment, due to greater confidence or stronger computing or IT skills. Engaging all students in online discussion can be problematic and ensuring that online discussion is a requirement of a module has associated issues relating to assessment strategies.

A Higher Education Academy LEAP case study highlights the assessed use of discussion boards on a pass or fail basis, in order that students might work more collaboratively and learn from their peers. Here the focus is on interaction and ideas exchange rather than quality of response, and on this occasion the frequency and quality of postings increased as a result (Fairhurst, 2003). Using meaningful language in postings and headings conveys the importance of idea exchange as the basis of communication.

“...we had more use made of discussion boards...that may also have been a factor in that part of the learning had to be done when students were away so in some sense one of the only ways that they could have interacted as a group...”

ALERT Staff

VLE recommendation: use meaningful subject headings and straightforward language in posts to highlight importance of ideas over format of response.

Strategic

Balancing workload

A strategic approach is needed for embedding discussion boards into modules to ensure their effective use.

Scheduling tasks will enable students to contribute equally to a variety of discussion boards, and greater participation and levels of engagement will be possible where demands are balanced.

“We will only run discussion forums in one first year, second year, and third year course - the core courses...”

ALERT Staff

VLE recommendation: to allow students to participate more in a variety of different discussion topics, conduct a departmental audit of when and how discussion boards are used.

Encouragement

The role of the tutor is crucial to the success of online discussion; they can facilitate interaction by informing, guiding and encouraging. For students, encouragement by their tutor is an important factor in the development, support and continuation of communication.

“...if the opportunity was there and it was encouraged it would be much more useful.”

ALERT Student

VLE recommendation: be pro-active in discussion topics, making your participation visible to students. By starting new discussion threads and responding to queries, students will observe your level of activity, and feel assured of a timely response and changing content.

References

- Burgstahler, S., 1997, Peer support: What role can the internet play? Information Technology and Disabilities, Vol. 4
- Debenham, M., 2001, Computer mediated communication (CMC) and disability support: Addressing barriers to study for undergraduate distance learners with long-term health problems, The Open University, Milton Keynes, http://www.techdis.ac.uk/index.php?p=3_20040610031024_20040412041243, last accessed July 05
- DfES, 2005, Harnessing technology: Transforming learning and children's services, DfES e-Strategy, <http://www.dfes.gov.uk/publications/e-strategy>, last accessed July 05
- Fairhurst, J. LEAP 7: Postgraduate distance learning conversion programme in Law, Higher Education Academy, http://www.heacademy.ac.uk/resources.asp?process=full_record§ion=generic&id=209, Last accessed July 05
- Griffiths, C., 2003, LEAP 10: Italtrete - a web-based communications tool for students of Italian preparing for and undertaking a period of study in Italy, Higher Education Academy, http://www.heacademy.ac.uk/resources.asp?process=full_record§ion=generic&id=212, last accessed July 05
- Salmon, G. ,2000, E-Moderating, The key to teaching and learning online, Kogan Page Limited, London.

Discussion / reflection points

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

Pedagogical

- Do you allow anonymous postings to encourage contributions?
- Do you encourage online discussions beyond classroom time?

Practical

- Have you clarified the tutor and students roles?
- Do you have clear guidelines as to what is expected of the students ie. rules for communication?

Strategic

- Do you have a departmental strategy across modules, to ensure that use of discussion boards are scheduled, to enable students to contribute to each task?

Action points

- Investigate the potential disparity of needs of your students to ensure you are utilising the correct tool. Ensure there is an alternative method of communication if this form of communication is not suited to all.
- Learn about e-moderating to be able to be an effective on-line tutor.
- Explore the other guidelines at the ALERT website – www.dur.ac.uk/alert

Disabled students and synchronous communication tools in a VLE

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 the use of synchronous communication tools in 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.

Synchronous communication tools

Synchronous communication, sometimes referred to as “virtual chat”, is a form of communication closely resembling real-time conversation. Individuals log into a system (e.g. a VLE) and can communicate directly with anyone else logged into the same system at the same time. The synchronous communication area may include a series of tools, including a whiteboard space for annotations and a course map to be able to display documents or information held within the VLE. The tutor maintains control over the tools students have access to and can either converse with the whole group or respond to individual questions. Sessions can also be archived for the purposes of revision and reflection.

“Everyone in the group benefits as long as everyone contributes.”

ALERT Student

Recommendations

Pedagogical

- Provide access to a synchronous session as a follow up to a face-to-face session. This facilitates students in extending their knowledge and ideas beyond the classroom time and enables those who may be physically impaired to participate more easily.
- Set up synchronous discussion to facilitate group work as this can encourage group cohesion, especially for those students whose physical impairment may prevent them from attending face-to-face sessions.
- Plan sessions to achieve learning and teaching objectives.

Practical

- Schedule virtual office hour sessions, whereby you establish times when you will be available online to answer specific questions from students. This will encourage quieter and less confident students to ask questions.
- Provide archived access to all the synchronous sessions that have taken place for the students to use for revision purposes and reflection.
- Synchronous discussion is not the most useful tool for a student with a slow typing speed or who cannot communicate quickly. Therefore, an awareness is needed of these specific disabilities to be able to plan for an alternate method of communication.

Strategic

- Devise a structure for the commencement and duration of the synchronous sessions to ensure that students know when other students and the tutor will be present for discussion.
- Establish rules for communication including the expected roles of the tutor and students e.g. language used.

Pedagogical

Stimulation of discussion, innovation and spontaneity of ideas

The use of synchronous communication to support face-to-face sessions can be useful as it can extend interactions between tutor and student, and student and student, beyond classroom time. This enables students to debate and explore concepts and ideas to further their understanding. It is often the case that this medium is initially used for more informal exchanges among students. Therefore, if this is taken into consideration for example, by following the “socialization” stage of Salmon’s five stage model (Salmon 2000), this often leads to further prolific academic debate. This alternative mechanism for being able to interact with other students and the tutor may be of particular relevance to those students who may have a disability in which their writing speed impedes their learning. This may be the case for certain students with dyslexia or dyspraxia, where their typing speed is quicker than their writing speed; this type of learning environment enables them to contribute more equally.

“I’ve used it this year for the first time and it was actually really good for stimulating discussion in seminar groups outside the work, so that’s definitely something I think should be used more.”

ALERT Student

VLE recommendation: to enable students to become familiar and confident with using the technology, provide a space for socialisation prior to the academic discussion.

Student-centred interaction

Synchronous discussion can be a useful tool for encouraging a student-centred approach to learning. Students can use the forum to informally exchange ideas and opinions and ask questions of each other in a time and space convenient to them, encouraging students to take greater responsibility for their learning. For those students with a physical disability whose impairment may prevent them from attending face-to-face sessions, having the flexibility to learn at their convenience can be advantageous. Further to this, results of an annual survey of use of the University of Durham VLE found that 61% of students accessed the VLE out of term time from home (Newland et al, 2004). Therefore, with a high voluntary access rate from students in addition to face-to-face interactions, providing a means of communication and interaction online can further enhance the learning experience.

“It would be quite useful if you could just go on to the actual chat room... it doesn’t have to be a lecturer, it could be another class mate who’s actually found the answer, and even if they don’t tell you where it is they can at least guide you...”

ALERT Student

It should be noted however that synchronous communication might not always be appropriate, it can present problems for those students who cannot communicate quickly or those with a slower typing speed. For example, someone with a learning disability might take a longer time to compose their thoughts. Synchronous discussion is not very conducive to this type of learning as it is synonymous with the rapid delivery and execution of thoughts and ideas. Therefore, an awareness is needed of these specific disabilities to be able to plan for an alternate method of communication (e.g. email) when not all students in a group can fully participate using chat.

VLE recommendation: highlight the extensibility of the synchronous discussion tools and encourage students to use it as a communication medium. Suggest that for assignments a transcription may be kept in order to minimise note-taking.

Construction of ideas

The use of synchronous discussion can enhance the development of student's ideas as students are able to debate and bounce ideas off one another. Mason (1998) points out that "synchronous communications promote motivation and group cohesion, as well as providing good feedback, supporting consensus and decision making". In addition to this a study by Pavey and Garland found that different styles of learning experienced through online group work were useful to individual student's understanding of the work (Pavey and Garland, 2004). This is of particular importance to those students who are physically impaired who may not be able to attend all face-to-face sessions. Having access to such tools as synchronous discussion provides students with a forum to be able to build rapport and group cohesion with one another and can also overcome feelings of isolation.

"Simple things like that have been really useful if you need to get in contact and if you need to develop your ideas, so yes, it has influenced my learning."

ALERT Student

VLE recommendation: ensure that students are aware of when other students will be online in order for them to communicate. Schedule specific times or encourage students to schedule their own times.

Practical

Equality of contributions

For those students who may be quieter or lack confidence in face-to-face situations because of other more dominating individuals, the synchronous tool provides an equal environment in which they may feel more comfortable to contribute. A study by Suguri et al found that open and dynamic discussion took place among a mixture of students and students with disabilities, in particular deaf students, in an online synchronous setting (Suguri et al, 2002). However, face-to-face interactions with these same students showed them to be shy and un-communicative. This highlights the importance of anonymous dialogue and chat discussion for people with disabilities.

"Nobody could dominate the conversation physically because they weren't there."

ALERT Student

VLE recommendation: to encourage and give confidence to those students who might not normally contribute, allow anonymous postings.

Revision / reflection

In addition to using the synchronous medium for scheduled question and answer revision sessions, any session that has been recorded can be accessed in the archive for revision and reflection purposes. This is particularly useful for those students with disabilities such as dyslexia, dyspraxia or visual impairment or where writing is a particular issue. Having an archive of students' and tutors' contributions will provide access to a set of cohesive notes to support their learning.

"I think it would be really good thing to encourage... revision groups online."

ALERT Student

VLE recommendation: ensure all necessary software and plug-ins are installed prior to a virtual chat session. Check institutional technical support.

Strategic

Informal support

From a convenience point of view students value the notion of being able to access the synchronous tool for informal question and answer sessions. Again this is of particular use to those students with a physical impairment. It is also of benefit to tutors to prevent them from having to answer the same questions repeatedly. Tutors can post answers once during an open office hour session for all students to access. Also, encouraging students to run their own sessions and respond to each others questions will promote a more student-centred approach to learning.

"I think it would definitely be really good, because quite often people have got questions and if you can't find the answer in a resource, it would be quite useful if you could just go on to the actual chat room."

ALERT Student

VLE recommendation: notify students when you will be available online to answer questions or queries in 'virtual office hours'.

References

- Mason, R., 1998, Globalising education: Trends and applications, RoutledgeFarmer, London and New York
- Newland, B., Newton, A., Pavey, J., Murray, M. and Boardman, K., 2004, VLE Longitudinal Report, duo (Durham University Online) 2001 - 2003, University of Durham, Durham
- Pavey, J. and Garland, S. W., 2004, The integration and implementation of a range of 'activities' to enhance students' interaction and learning, Innovations, Education and Teaching International, Vol. 41, No. 3
- Salmon, G., 2000, E-moderating the key to teaching and learning online, Kogan Page, London
- Suguri, V., Matos, L., Castro, N., Castro, I., Jung, L.M. and Rusten, E., 2002, Pedagogical uses of web-based chat: a pilot activity in Brazil, Learn Link, Academy for Educational Development, Washington DC, http://learnlink.aed.org/Publications/Concept_Papers/web_based_chat.pdf, last accessed July 05

Discussion / reflection points

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

Pedagogical

- Why is the use of synchronous discussion useful for students with a physical disability?
- What are the benefits of synchronous discussion for revision purposes for students with disabilities?
- Are you actively using synchronous discussion to support your teaching? Or is it a tool that you will encourage your students to use and moderate themselves?

Practical

- What issues are related to the use of synchronous discussion with students with a slow typing speed?

Strategic

- Do you have information available to students about the structure and duration of synchronous sessions?
- Do you have departmental guidelines on usage e.g. language use, pedagogical aims?
- Do you have a departmental strategy as to use of the communication tools across various modules?

Action points

- Investigate the potential disparity of needs of your students to ensure you are utilising the correct tool. Ensure there is an alternative method of communication if this form of communication is not suited to all.
- Trial the software with colleagues before using it with students, to ensure that you are confident with using the various tools.
- Explore the other guidelines at the ALERT website – www.dur.ac.uk/alert

Disabled students and assessment through a VLE

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 assessment 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.

Assessment

Assessment through a VLE can include online quizzes, electronically submitted essays or descriptions of an assignment. Benefits include improved feedback, convenience, flexibility and a balance of assessment methods (Bull, 1999). The VLE provides students with a central location for all assessments.

“(Online assessment) gives you an idea of where you're at rather than class exams...it shows you the bits you need to focus more on as well which is good.”

ALERT Student

Using a VLE in formative assessment, which provides students with ongoing feedback and shapes progress without contributing to the final mark, allows students the flexibility to complete tasks in their own time, environment and at their own pace. In using a VLE for summative assessment, where students' achievements in relation to intended learning outcomes are measured, exercises and methods must be aligned with institutional policy.

Recommendations

Pedagogical

- Using a variety of interactive assessments allows students to reflect on learning and identify areas that need more study.
 - By reflecting the curriculum in assessment, teaching and learning activities are directed towards a defined objective (Biggs, 2003).
 - Continual feedback and steering gives students a visible and active support framework. High quality feedback promotes understanding (Ramsden, 1992).
- Online tests allow confidence building and development of self-assessment.

Practical

- Take discipline and learner specific requirements into consideration:
 - Use a variety of different types of quiz components to allow students variation in activities and to accommodate a variety of learning styles.
 - Consider if it is appropriate for students to be able to repeat quizzes.
- Make all assessment details available through the VLE, even if it does not take the form of a quiz (e.g. description of assignments or problems sheets).

Strategic

- Establish a departmental policy about assessment through the VLE in relation to the timing and frequency of assessment and the scheduling of tests.
- Consult institutional policy on summative online assessment.

Pedagogical

Structuring, reinforcing and extending learning

Using VLE based assessment throughout the duration of a course can help students reflect on prior learning and develop an understanding of new concepts. Computer-assisted assessment (CAA) can provide richer data about students' performance than paper-based testing, and can thus carry very rich pedagogical implications (Conole and Warburton, 2005). Providing students with an opportunity to put new knowledge gained throughout a course into practice allows them to apply abstract ideas and develop a basis for further coursework, in line with Biggs' SOLO taxonomy (Biggs and Collis, 1982). Many students, including those with dyslexia, handwriting problems or mobility impairments, cite online tests as being useful in helping them deal with large volumes of information and extensive reading lists from a convenience and a practicality point of view.

Additionally, asking students to take part in regular VLE based assessments provides scaffolding for learning. Scaffolding enables students to forge links between old and new elements of knowledge (Cottrell, 2001) and allows them to interrelate concepts. The scaffolding metaphor exemplifies constructivist and sociocultural educational theory, aligning itself with the work of Vygotsky and his work on the zone of proximal development, the cognitive domain in which he argues that learning occurs (Vygotsky, 1978).

“...while you're doing (online assessments) you're reading and it's a way of making reading interesting and purposeful...”

ALERT Student

“...online assessment, just as a formative thing would be quite useful, and the feedback I got off students this year was they did like having that and they could go off and do it in their own time.”

ALERT Staff

VLE recommendation: identify areas where students' understanding is not fully developed though regular use of formative assessments.

Consolidating ideas and establishing focus

By testing knowledge and providing immediate, tailored feedback, students are able to identify areas of their work in need of a more dedicated approach. This can be particularly useful for disabled students in gauging their individual progress and performance and areas in which they may need more support. Feedback and monitoring aids in time management and revision, and encourages a consistency in the momentum of the pace of students' coursework completion. Relevant and clear feedback in line with learning outcomes is vital in making VLE based assessments successful, and the VLE as an adaptive environment for students has the potential to encourage high level learning (Laurillard, 1996). Furthermore, linking feedback directly back to content in the VLE can allow students to consider areas where they may have received negative feedback.

“...if you have quizzes you can go back from a lecture and answer a few questions to see if you've taken anything in, then you get a mark straight away and you can think 'obviously paid attention to that lecture' or 'oh no, I'd better go and learn that again' ...”

ALERT Student

VLE recommendation: provide tailored feedback to the students and allow the student to respond.

Convenience and confidence

The flexibility of self paced learning applies to online assessment. Many students with disabilities will need alternative assessment formats or modifications (Teachability, 2000) and the adaptability that digital resources provides can aid in this, and furthermore is suggested as a means to making provision in the Quality Assurance Agency Code of Practice on Students with Disabilities (QAA, 2004). For those students who have concentration problems, dexterity difficulties or who need more time to complete a task, taking tests online provides an alternative where students can work at their own pace and in their own environment. This fosters confidence and means that students will not feel the pressure of the progress of their peers.

“We have done some multiple choice tests and things on the computer... I think it's great because you can do it wherever you feel comfortable, whenever it fits in with your time.”

ALERT Student

VLE recommendation: allow students sufficient completion time when using assessment.

Practical

Diversifying activity and making provision

Involving students in VLE based assessment tasks presents the opportunity for different types of activity, increased engagement and allows for a variety of different learning styles (Becta, TechDis and JISC, 2003). VLE based assessment can be used as part of “a balance of assessment methods which clearly relate to the skills, abilities and knowledge which need to be tested” (Bull, 1999). As a result of the enormous amount of variance in what can constitute CAA, students' individual ability to complete these tasks must be taken into account (Wiles, 2002).

“...it could be useful for a break from everything else and also it could guide your work... you know, where you're falling down, cos it can tell you what you're getting wrong and then you can build on that.”

ALERT Student

VLE recommendation: use a variety of assessment types in quizzes, including open response text options.

Providing support and reference

VLE based assessments offer effective ways of allowing students access to immediate feedback customised to their own knowledge. However, due to the automated response of the VLE software quizzes, the personal interaction and critique of work is often cited by the student as being an important aspect of the feedback loop which is not in evidence. Hence, support or discussion of the task are appreciated by students.

By making all assessment materials available in the VLE, students only have to access one location for details of assessments. Additionally, tools within the VLE facilitate linking back to previous assessments and feedback, and help build a profile of the student's performance.

“...those assignments are set at the beginning of the year, so I think they should just be put on there at the beginning of the year, like, 'you're gonna have 3 formative essays, 3 summative essays, they'll count for this, they're due around this date...”

ALERT Student

alert – Accessibility in Learning Environments and Related Technologies

Providing assessment timetabling in advance will allow those students in need of organizational time management support to be able to plan more effectively. At a departmental level this will also allow students and staff to see peaks and troughs of assessment activity.

VLE recommendation: establish dedicated discussion boards and informal online support groups to raise issues and provide support to supplement VLE based quiz activity.

Appropriate use

Due to the restricted response nature of VLE based assessments that are in a multiple-choice question (MCQ) or multiple-answer question (MAQ) format, some students have criticised the applicability of this medium. The student's approach to the task as well as the nature of the discipline have a marked effect on perception of the relevance of the task.

Appropriate and effective implementation is essential in making sure that online assessment offers “both pedagogical benefits and efficiency gains” (Bull and McKenna, 2003).

“ (Online quizzes) could be useful, if used in the right way. The whole online assessment thing, I think most people don't like using them because they're quite patronising...”

ALERT Student

VLE recommendation: consider the nature of the topic which is to be assessed and use question types accordingly.

Strategic

Aligning with institutional assessment policy

It is vital that the use of a VLE for summative assessment is in alignment with institutional policy and QAA procedures. Institutional assessment policy ultimately governs how VLE capabilities can be used. Though marks can be recorded for formative assignments in VLE software, issues like second marking in summative exercises should be conducted in line with institutional policy.

VLE recommendation: for summative assessment, consult institutional policy on how to use online assessment.

Sharing information

In a number of VLE software packages a “gradebook” facility records students' individual performance. This allows students a personalised view of the marks they have achieved over time, and allows staff to look at all students' achievements and adapt practice to address problem areas.

VLE recommendation: encourage digital submission of assignments to increase flexibility and extensibility of VLE and explore the “gradebook” facility within your VLE package.

Interoperability

Third party extension assessment software tools (eg. Questionmark) can be use in conjunction with VLE software to increase its capabilities.

VLE recommendation: liaise with your learning and teaching support unit to investigate the nature of third party software to enhance the assessment tools within your VLE.

References

- Becta, TechDis and JISC , 2003, Alternative assessment, Inclusive learning and teaching: ILT for disabled learners, Becta and JISC TechDis Service
- Biggs, J. and Collis, K., 1982, Evaluating the quality of learning: the SOLO taxonomy, Academic Press, New York
- Biggs, J., 2003, Teaching for quality learning at University, Second edition, Society for Research into Higher Education and the Open University Press, Buckingham
- Bull, J., 1999, Computer-assisted assessment: Impact on Higher Education Institutions, Journal of Educational Technology & Society Vol. 2, No. 3
- Bull, J. and McKenna, C., 2003, A blueprint for computer-assisted assessment, Routledge, London
- Conole, G. and Warburton, W., 2005, A review of computer-assisted assessment, ALT-J, Research in Learning Technology, Vol 13, No 1
- Cottrell, S., 2001, Teaching study skills and supported learning, Palgrave, New York
- Laurillard, D., 1996, Rethinking University teaching, Routledge, London
- QAA Code of Practice on Students with Disabilities, 1999,
<http://www.qaa.ac.uk/public/COP/COPswd/contents.htm>, last accessed July 05
- Ramsden, P., 1992, Learning to teach in higher education, Routledge, London
- Teachability, 2000, Creating an accessible curriculum for students with disabilities, University of Strathclyde, Glasgow
- Vygotsky, L.S., 1978, Mind and society: The development of higher mental processes, Harvard University Press, Cambridge, MA
- Wiles, K., 2002, Accessibility and computer-based assessment: a whole new set of issues?, Access all areas: disability, technology and learning, Phipps, L., Sutherland, A. and Seale, J. (Eds), JISC TechDis Service and ALT

Discussion / reflection points

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

Pedagogical

- What benefits do you think immediate feedback has for disabled students?
- How do you account for variations in learning styles and disability in your current approach to online assessment?

Practical

- What types of online assessment do you use and what is the reasoning behind this?
- Is there a specific type of question format which you feel is conducive to assessment in your discipline?
- Do you provide assessment through a VLE? If no, do you have a reason?

Strategic

- Do you work with colleagues in scheduling assessment through the VLE?
- What institutional assessment policy is in place to guide your use of the VLE in summative assessment?

Action points

- Read the CAA Centre 'Blueprint', available at <http://www.caacentre.ac.uk/bp/index.shtml>
- 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

Disabled students and group work in a VLE

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 group work in 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.

Group tools

Tools exist within VLEs which enable the creation of online groups to promote online interactions at a time and location convenient to students. Groups are created and students assigned to them; only members of that group and the facilitating tutor are then able to access the information. These online communities can provide support for disabled students by offering support out of face-to-face sessions and the opportunity to contribute at their convenience, providing support for handwriting, reading or mobility impairments.

Communication tools form the basis of the group work area including synchronous and asynchronous discussion tools and email (for further information please see other ALERT guidelines on synchronous and asynchronous discussion). There is also the functionality to be able to share documents and information via a file exchange tool.

“In online group work I can look at someone else’s work, and I usually interpret what they’ve written better than if they had said it...if they don’t write it down then I’ve no chance of understanding it.”

ALERT Student

Recommendations

Pedagogical

- Encourage students to contribute in online groups by guiding and responding to discussions.
- Ensure students have access to all the available group tools to optimise the sharing of knowledge and ideas.

Practical

- Allow self-selection to groups, so that students are able to adapt more easily to one another’s individual approaches and strategies to learning.
- Allow sufficient time for individual preparation prior to the group work commencing, so that individuals are not disadvantaged if they have slower reading or writing speeds.
- Encourage students to organise their own group dynamics, assigning specific roles to individuals.

Strategic

- Devise strategies to ensure that all students are aware that they are to be non-discriminatory within their groups. The level of expectation of students’ contribution, spelling and grammar may differ between types of group work, e.g. reflective online group discussion and spontaneous online group chat.

Pedagogical

Equality

Online group work is a useful mechanism to engage students in communicating, to share ideas and to expand their knowledge. Students who might not normally contribute in a face-to-face situation are given an alternative and potentially less intimidating way to contribute in an online environment. If a student lacks confidence because of their particular disability, they have time to read, deliberate and contribute to online group discussion over a period of time. This can empower students to feel that their contributions are valued equally by their peers and the tutor. In addition to this, face-to-face interactions are conducive to an environment in which those students who are more vocal and are more confident can more easily dominate. Online groups can encourage individual's strengths that might not be as visible in other situations. For example, students who are less vocal in a face-to-face situation may feel more confident about speaking out in a smaller online group situation.

Some students, in particular those with dyslexia, can find group work a difficult undertaking, mainly because they are under-confident and feel apprehensive about sharing their written work. Conversely, for some disabled students, written ideas are easier to understand and process than verbal ones. Therefore online group work with a written log of conversation can be more supportive than oral face-to-face communications. Teaching strategies can be adopted to ensure that all group members are non-discriminatory against individuals for such things as spelling and grammar.

“I'd never have been able to say that if I was face-to-face with everybody... and I wouldn't normally talk that much in a group.”

ALERT Student

“There's nothing worse than being put in a group, and being expected to produce a piece of written work when you just don't want to.”

ALERT Student

“...group work is very useful cos you can bounce ideas and if you've all got different views you can have debates as to what's the right view ...”

ALERT Student

VLE recommendation: highlight different levels of expectation of students' contribution according to task, e.g. a more considered thorough approach to reflective online group discussion rather than in spontaneous online group chat.

Learning styles

All students, and in particular disabilities students, are familiar with managing their own work schedules and may have adopted a particular approach to learning because of their disability. Many students with disabilities are accustomed to working at their own speed with their own learning techniques, therefore working as part of group can become problematic. Again strategies such as self-selection to groups can ensure that group members will be familiar with each other's approaches to learning and adapt and accommodate each other accordingly.

Although online group work can encourage those students who might not normally contribute face-to-face, it cannot afford the assurances that confident individuals will not still dominate. This may result in de-motivation of certain

“...the problem with group work is that there's no reflection on what each individual is doing...when one person or several people are doing different amounts of work it can be quite annoying.”

ALERT Student

alert – Accessibility in Learning Environments and Related Technologies

members of the group who feel that their individual ideas have not been reflected in the task. The role of the tutor is therefore crucial to the success of the group. Regular review of the group areas to guide and encourage active learning and monitor which groups students are participating in is fundamental. Allowing time for individuals to research their own roles and responsibilities as well as those of other group members is also important for the success of group work (Pavey and Donoghue, 2003).

“Everyone’s got their own set agendas and if you can’t meet a deadline for your group then you’re letting your group down as well.”

ALERT Student

VLE recommendation: to optimise group learning be active in monitoring student participation in online groups and encourage students to reflect on their individual roles.

Practical

Wider range of information

Online group work facilitates access to an environment that offers a wide range of information (web links, Word documents, etc) that might not be as readily available and as easy to distribute face-to-face. In addition to this, from a logistical point of view, students are not deterred from being able to share knowledge, as they do not have to arrange to physically meet.

The provision of digital materials to groups allows for delivery of specific materials to each group. This enables tutors to provide resources that meet the students’ needs and the students to adapt any resources to be more usable.

Group work exercises promote benefits in efficiency and productivity and “accomplish tasks that can not be done by individuals alone; they bring multiple perspectives to bear on a single problem... they provide a vehicle for decision-making and taking,” (Harrison, 1999). As well as promoting problem solving skills and creating a support network for those students with confidence issues or cognitive impairments, this is also practically important for those students who are physically impaired and might normally be disadvantaged by building restrictions.

“(Group work) was a useful experience, in that you got to find out a lot more than you probably would have done on your own.”

ALERT Student

“... it was actually really good for stimulating discussion, seminar groups outside the work... definitely something I think should be used more.”

ALERT Student

VLE recommendation: make a wide variety of group tools available to optimise the group learning experience.

Communication

Online groups offer disabled learners assistance with communication barriers or problems in accessing pedagogical or technical support. It can also assist staff in assessing the levels of participation by individual students (Becta, TechDis and JISC, 2003). The group facility provides an additional communication mechanism between smaller groups of students and also between students and the tutor. Online discussion is proven to be more effective if conducted with smaller groups of students, as “it is within the small group that self-confidence can be improved, and teamwork and interpersonal communication developed,” (Fry et al, 1999).

“We all write specific essays...the tutor distributes them by email within the group which means that everybody gets a copy...and it covers all of the essays collectively over the whole module.”

ALERT Student

VLE recommendation: to form active communities consider allowing self-selection of groups where applicable, and establishing relevant group pages. Students will be more likely to form active communities if comfortable with their fellow group members.

Strategic

Implementation of groups

The establishment and implementation of groups is key to the success of the online setting. Enabling students to self-select to groups ensures that they have more control over who is and who isn't contributing. If students have selected their own group members they then take responsibility for the management of the group. This is especially important for those students with disabilities who are not as confident at sharing written work and who may feel more at ease sharing with other students who are aware of their disability.

“When you work with people who are as committed to working as hard as you are, then you can do really well.”

ALERT Student

Encouraging students to manage their own groups and to develop the group dynamics should be an integral part of the exercise. Assigning roles within groups will ensure that all students participate equally and enable individuals to focus on a specific task, as “ICT-rich group work needs to engage members in concrete group learning activities,” (Baskin et al, 2004). Students should also be briefed on how often they are expected to access and contribute to the online group communities in order that expectations on them are explicit.

“If you can choose your group it tends to be a bit better, ...if they think that somebody is going to do a good job...you want to do a really good job. ”

ALERT Student

VLE recommendation: encourage feedback from students on the dynamics of their group. By allowing students to reflect anonymously, they can develop their delegation or collaborative skills by identifying strong and weak points within the group without the discomfort of directly naming any classmates.

Life skills

Group work provides student with key skills for preparing them for the work place after University. Nearly all working situations require their employees to be able to work effectively as part of a team or group; very few environments are conducive to an individual approach. Therefore, online group work offers the flexibility to be able to prepare students effectively for the future at a time and location convenient to them. Students will also have to prepare themselves and be able to develop strategies to accommodate those people who don't contribute as fully as they should do, as these are all issues they may encounter in a working environment.

“Group work is very useful for preparing you for going into the workplace because you do have to do group work and you will meet people who don't pull their weight and such like.”

ALERT Student

VLE recommendation: placing responsibility on individuals by assigning designated roles within group work can encourage participation of all students.

References

- Baskin, C., Barker M., and Woods, P., 2004, Towards a conceptual model for online group work – Addressing graduate skills development in online courses, The Australian Association for Research in Education (AARE) Conference proceedings 2004, <http://www.aare.edu.au/04pap/bas04433.pdf>, last accessed July 05
- Becta, TechDis and JISC , 2003, The learning experience, Inclusive learning and teaching: ILT for disabled learners, Becta and JISC TechDis Service
- Fry, H. Ketteridge, S., and Marshall, S., 1999, A handbook for teaching & learning in higher education, Enhancing academic practice, Second edition, Kogan Page, London
- Harrison, E.F., 1999, The managerial decision-making process, Fifth edition, Houghton Mifflin, Boston
- Pavey, J. and Donoghue, D., 2003, The use of role play and VLEs in teaching Environmental Management, Higher Education Academy subject centre for Geography, Earth and Environmental Sciences (GEES), Planet Edition 6 Issue 10

Discussion / reflection points

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

Pedagogical

- Are your students familiar with how to use the different group work tools available to them in the VLE and to communicate online?

Practical

- Have group roles been identified?
- Have the group practicalities being defined? E.g. How often the group are meant to access the online space.

Strategic

- Has the tutor clearly defined their role in exercises? How often will they be accessing the group areas? How much guidance will be given?
- Do you allow self-selection of groups? If yes, do you believe this has impacted upon group dynamics and activity?

Action points

- Explore ways in which face-to-face group assignments might be conducted through VLE tools.
- 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 or may be necessary.
- 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

Disabled students and technical aspects of VLE use

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 technical aspects of VLE use, 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.

Technical aspects of VLE use

Though the ALERT project was primarily concerned with the pedagogical implications of VLE use, the guidelines and recommendations still recognise the potential impact of technical issues on disabled students' experience. Major VLE software companies have an integral and high profile commitment to making sure that their products comply with international disability legislation such as SENDA (UK), Section 508 (US) and the Disability Services Act (Australia).

“...accessible web design is a lot more than just meeting sort of criteria...standards.”

ALERT Student

By consulting such companies' accessibility policies as well as guidelines promoting good practice in the development of accessible materials, it is possible to build a representative image of how the VLE can be effectively used. Effective feedback channels through which students can comment ensure that varying needs are being addressed.

Recommendations

Pedagogical

- Think about how students are using the VLE and find out what assistive technologies they may have. Decide how this may impact upon the materials you prepare – how do you envisage the materials being used?
- Building students' confidence in VLE use can be instrumental in combating technical problems. Through regular, engaging and extensive use, students will become more at ease with the capabilities and likely to experiment.

Practical

- Encourage students to be open about their requirements and provide a feedback mechanism whereby they can discuss any technical issues that arise in their use of the VLE.
- Familiarise yourself with the accessibility statement of the VLE package you use and make this available to students.
- Remember that the application of universal design principles for usability improve the experience of all students, not just those with disabilities.

Strategic

- Liaise with colleagues in disability support roles or those with specialist knowledge of assistive technologies to establish how the VLE works in conjunction with these technologies.
- Establish a departmental strategy on what level of technical or academic support might be offered in terms of the VLE, and to what extent this is supported by the learning support or disability support unit.

Discussion / reflection points

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

Pedagogical

- What aspects of VLE use do you think might provide the biggest technical barrier for disabled students?
- Are there any aspects of the VLE you use that your students have found problematic technically? Or any which your colleagues have had difficulty with?

Practical

- What technical considerations do you currently implement before making any lecture support materials available through a VLE?
- In what ways do you use the VLE to communicate with students? Do you use any of these to ascertain student opinions on the user-friendliness of the VLE?
- What technical aspects affect your use of online assessment tools?

Strategic

- Do you have a departmental policy on technical and academic support for the VLE?
- In what ways do you work alongside students to improve provision within the VLE?
- Do you have an extended community of practice with colleagues in disability support or specialists in assistive technologies?

Action points

- Consult W3C (<http://www.w3.org/TR/WCAG10/>) and TechDis (<http://www.techdis.ac.uk/index.php?p=3>) recommendations and resources on developing accessible web content
- 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 recommendations within these guidelines are already embedded within your own use of a VLE
- Liaise with software supplier to ensure maximum accessibility is possible.
- Explore the other guidelines at the ALERT website – www.dur.ac.uk/alert

Disabled students and a VLE - Practical considerations

Interface and navigation

Contrast between background and text colours

- Many dyslexic and dyspraxic students experience problems with navigation text due to slow reading speeds. Ensuring text is well contrasted to the background and that distracting background images are kept to a minimum will maintain clearer navigation.

Use of banner images

- Banner images can be used to convey meaning visually. This immediately helps students recognise which course they are in.
- Animated content, if not used for illustrative purposes, should be avoided.

Currency of information

- Out of date announcements can cause confusion for some students who have concentration or organisational difficulties.
- Current information is vital to help students plan and prepare and helps students with mobility problems know in advance of any changes to scheduled face-to-face sessions.

Organisation

Consistency

- It is important to maintain consistent navigation and a logical document structure in the VLE. This helps students who rely on memory to find information more easily.
- Ensure documents are in a logical place, for example, place the course handbook in a folder called "Course Documents".

Naming files and folders

- By giving files and folders obvious and meaningful names, students are able to find the information they are looking for.
- For example, a file called "220304.doc" has no real meaning to a student when looking for links or saving the file locally to their computer. A file named "lecture1relativity.doc", however, allows the student to place the document in an organised, scheduled structure and know the main topic.

Empty folders

- Try to avoid leaving folders empty, as this causes confusion and frustration. Many students with organisational or concentration difficulties become discouraged from using a VLE when they find "shell" courses or folders with no useful content.

Dead links:

- Make sure that all links are live, whether to documents or external web pages. Linking to external content encourages independent research amongst students.

Staff information

Contact details

- Students appreciate having complete contact details readily available on the VLE.
- By including your email address, office location and hours when you are available, students will know where and when to find you.

Use of images

- Posting a picture of yourself and colleagues will allow students to identify you.

Disabled students and a VLE - Recommendations

The **VLE recommendations** grouped below are summarised from those made within each of the separate ALERT guidelines, available from the project website at www.dur.ac.uk/alert. The guidelines are based on the analysis of student and staff interviews which comprise the case ALERT studies.

The aim of the **VLE recommendations** within each of the ALERT guidelines is to highlight ways in which use of the VLE can be adapted to support and encourage active transformation of knowledge in deep learning through the implementation of constructive alignment (Biggs, 1999). The **VLE recommendations** highlight the notion of the “context of delivery”, which enables students to achieve the maximum benefit from their study. This is a key factor in achieving pedagogical objectives as "the most stunning educational materials ever developed will fail to teach if the context of delivery fails," (Laurillard, 2002).

The **VLE recommendations** are geared towards use by academic and student support staff, rather than those whose main remit is technical or system administration support.

Where possible or applicable, consideration of the following recommendations will allow for a more inclusive and adaptive approach to VLE use.

Holistic use of a VLE

Pedagogical

- Integrate the use of the VLE within the curriculum by including references to its capabilities in face-to-face sessions.
- Encourage students to work collaboratively by establishing online groups. Self-selection and assigning roles within these groups can be effective ways of encouraging students to participate.
- Build students' confidence by demonstrating VLE tools in face-to-face sessions. This visualisation will give students an overview of potential uses.
- Promote a more accessible learning experience by considered use of the VLE e.g. provide reading lists or announcements to assist students with mobility impairments or promote use of discussion boards for students who lack confidence in face-to-face sessions.

Practical

- Keep navigation obvious, intuitive and simple and ensure content is relevant.
- Try to ensure that navigation, appearance and the organisation of information are similar across courses.
- Establish inductions to the VLE for staff and students, and regular sessions thereafter, through liaison with your IT department or technical support.

Strategic

- Provide an extended community for students through liaison with student support bodies such as disability support services, and also pastoral and recreational organisations. In so doing, much of their learning support and recreational material can be made available from one location.
- Conduct a departmental / school overview of how the VLE is being used, and which tools support particular learning objectives. Not only will this enable staff to share practice, but also give an illustration of which different activities students are taking part in on a larger scale.

Asynchronous communication through a VLE

Pedagogical

- Encourage reflection by re-using discussion forums.
- Allow anonymous participation to encourage less confident students to participate.
- Accept that not all students will post to discussion boards, but may still be making use of them through passive interaction.
- Clarify how discussion boards will be used for the delivery of assessment related information to avoid confusion with use of assessment tools within the VLE.
- Encourage peer support groups by establishing smaller discussion board groups for informal interaction between students.

Practical

- To encourage students to extend classroom discussions, establish lecture topic specific threads.
- Use bespoke discussion boards to support placements and study external to face-to-face sessions. This gives students a central point of contact for tutors and other students in their cohort.
- Use meaningful subject headings and straightforward language in posts to highlight importance of ideas over format of response.

Strategic

- To allow students to participate more in a variety of different discussion topics, conduct a departmental audit of when and how discussion boards are used.
- Be pro-active in discussion topics, making your participation visible to students. By starting new discussion threads and responding to queries, students will observe your level of activity, and feel assured of a timely response and changing content

Synchronous communication through a VLE

Pedagogical

- To enable students to become familiar and confident with using the technology, provide a space for socialisation prior to the academic discussion.
- Highlight the extensibility of the synchronous discussion tools and encourage students to use it as a communication medium.
- Suggest that for assignments a transcription may be kept in order to minimise note-taking.
- Ensure that students are aware of when other students will be online in order for them to communicate. Schedule specific times or encourage students to schedule their own times.

Practical

- To encourage and give confidence to those students who might not normally contribute, allow anonymous postings.
- Ensure all necessary software and plug-ins are installed prior to a virtual chat session. Check institutional technical support.

Strategic

- Notify students when you will be available online to answer questions or queries in “virtual office hours”.

Assessment through a VLE

Pedagogical

- Identify areas where students' understanding is not fully developed though regular use of formative assessments.
- Provide tailored feedback to the students and allow the student to respond.
- Allow students sufficient completion time when using assessment.

Practical

- Use a variety of assessment types in quizzes, including open response text options.
- Establish dedicated discussion boards and informal online support groups to raise issues and provide support to supplement VLE based quiz activity.
- Consider the nature of the topic which is to be assessed and use question types accordingly.

Strategic

- For summative assessment, consult institutional policy on how to use online assessment.
- Encourage digital submission of assignments to increase flexibility and extensibility of VLE and explore the "gradebook" facility.
- Liase with your learning and teaching support unit to investigate the capabilities of third party software to enhance the assessment tools within your VLE.

Group work in a VLE

Pedagogical

- Highlight different levels of expectation of students' contribution according to task, e.g. a more considered thorough approach to reflective online group discussion rather than in spontaneous online group chat.
- To optimise group learning be active in monitoring student participation in online groups and encourage students to reflect on their individual roles.

Practical

- Make a wide variety of group tools available to optimise the group learning experience.
- To form active communities consider allowing self-selection of groups where applicable, and establishing relevant group pages. Students will be more likely to form active communities if comfortable with their fellow group members.

Strategic

- Encourage feedback from students on the dynamics of their group. By allowing students to reflect anonymously, they can develop their delegation or collaborative skills by identifying strong and weak points within the group without the discomfort of directly naming any classmates.
- Placing responsibility on individuals by assigning designated roles within group work can encourage participation of all students.

Delivery of learning support material

Pedagogical

- 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.
- Allow each student to customise digital materials to meet their own needs by delivering lecture support materials through a VLE.
- Encourage independence by ensuring students know how to access class materials and where pertinent information is kept within the VLE.
- Allow students to look retrospectively at what they have studied over a module by archiving learning support materials.

Practical

- Put all materials in the VLE at the beginning of a course with timed release.
- Promote blended learning by using the VLE to support face-to-face sessions and vice versa.
- 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.
- Link library and web resources to course materials.
- 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

- Establish effective and consistent methods of VLE use through liaison with your departmental colleagues based on considered use and student feedback.
- Consider requirements of individual learning objectives in designing inclusive and consistent VLE course appearances and navigation.

The guidelines are available at the ALERT website:

<http://www.dur.ac.uk/alert>

References

- Biggs, J., 1999, Teaching for quality learning at University, SRHE and Open University Press, Buckingham
- Laurillard, D., 2002, Rethinking university teaching : a conversational framework for the effective use of learning technologies, Second edition, Routledge Falmer, London