



## Information Management in the Virtual Learning Environment

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### Abstract

*Virtual Learning Environments such as Blackboard, Moodle and others have become ubiquitous in higher education and are increasingly common in secondary schools. Considerable scholarly attention has been paid to course design in the VLE. As a result of criticisms that VLEs tend to be used as content repositories, much of the work has focussed on the importance of student activity in the VLE since student activity is clearly a driver of student learning. Yet content remains important, and there is something of a lacuna in the analysis of what content is chosen for a VLE and, importantly how that content is organised and presented to students.*

*In this, the analysis of VLE content has something in common with that of reading lists which somewhat surprisingly, given the historical prevalence of the reading list in higher education is a rather under-analysed topic. Research into reading lists has shown that students tend to ignore those works not marked as “essential”, suggesting that they may take a similar approach to VLE content.*

*This paper reports on a potential conceptual framework derived from a study of every VLE site used in a medium sized UK university during the academic year 2013-14, which identified three distinct approaches to managing content, mirroring the syllabus temporally, attempting to organise disciplinary knowledge and facilitating course administration. The paper also maps out a strategy for developing research into how both students and teachers conceptualise a virtual learning environment.*

### Minimum standards for VLEs?

The Virtual Learning Environment (VLE) has become ubiquitous in higher education in the UK. One comprehensive longitudinal study indicates that all UK institutions use at least one VLE, and several use multiple VLEs (Walker, et al, 2012). The survey also found that “enhancing the quality of teaching and learning remains the primary driver for considering the use of technology enhanced learning. (Walker et al, 2012;6) This raises a number of questions about how VLEs might enhance the quality of student learning. To this end, there has been a growth in calls for the introduction of “minimum standards” in UK VLEs. However when examined in detail, the notion of “minimum standards” proves to be rather complex. There does appear to be broad, although by no means universal agreement on the kind of content that is needed to meet minimum standards. (Reed and Watmough, 2015; 82) but there is less agreement on how content should be managed.

Without some form of attention to information management, a VLE module site (or any web site) can soon become an unnavigable repository of a large volume of data. In my previous post, I was an educational developer, with specific responsibility for quality enhancement with respect to e-learning. Internal feedback confirmed a theme that was becoming prevalent in the literature, namely that a common source of complaint from students was that academic staff were “inconsistent” in their use of VLEs (Ahmed and Morley, 2010). Clearly students’ concerns are important but ‘inconsistent’ is not a particularly helpful description of the problem. What does it look like? My position meant that I had access to all the VLE module sites at my own institution, so as a first pass, reported here, I undertook an analysis of the way in which the information was presented, and it is this that is presented here.

Considerable scholarly attention has been paid to course design in the VLE (Liber and Britain, 2004, Vogel and Oliver, 2006) . In spite of criticisms that VLEs tend to be used as content repositories, it is important not to underestimate the importance of student activity in the VLE. Participating in discussions, on-line seminars or webinars, contributing to wikis course blogs and engaging with formative assessments in the shape of on line quizzes are all essential to successful study. This is an important strand of research and useful to practitioners, but it has left something of a lacuna in analysis of what content is chosen for a VLE and, importantly how it is organised and presented to students. In this, the analysis of VLE content has something in common with that of reading lists which somewhat surprisingly, given the historical prevalence of the reading list in higher education is a rather under-analysed topic (Stokes and Martin, 2008).

The role of a teacher, in any educational environment is highly diverse, as is the ways in which they interact with technology. An important role is to act as a knowledgeable source of information, one who has to make decisions about the relative importance of this or that piece of disciplinary expertise.

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Of course, as teachers, we hope that students will come to a position where they can make informed criticism of those decisions, but they need to be equipped with some conceptual ammunition before they can do so. Students can not make a useful contribution to a discussion group or wiki if they have not taken some steps to understand the basic conceptual structure of a subject. This poses some challenging research questions: How do lecturers decide which content to select? How do they organise it? The first of these questions has much in common with the choices made by lecturers in regard to reading lists and, such studies as have been done seem to agree that the reading list is not something that academics devote a great deal of time to, compilation being seen as a somewhat unproblematic chore. Students are rarely, for example, given any guidance on how to read a text, or any indication of why it has been included, even if it is described as “essential” on a reading list (Piscioneri and Hlavac, 2013). Stokes and Martin, also noted that “essential” was often interpreted by students as “the only reading necessary to successfully pass this course”.

If that is so, then there is an argument that there needs to be a more sophisticated approach to the structuring of information. This paper reports on the first part of a project to look at how this might be done. The research design is in three parts. First I studied every Blackboard site in my own institution, based on records from the 2013-14 academic year, since this was the last year in which complete records were available, and examined the way in which information was presented to students. For practical reasons the study was limited to sites supporting taught modules and awards. Future stages of the research will involve interviews a variety of staff in a range of different institutions and disciplines to assess what problems they have experienced in building their VLE sites, (some of these have already been carried out) and the deployment of a questionnaire to students across a wide range of institutions to find out what their expectations of a VLE are.

## Findings

There were 1167 VLE sites in the study, and at the lowest level of analysis it proved possible to organise them into very simple categories. By far the most popular model was what I termed the calendar model, where content was organised in a way that matched the syllabus as it is delivered in real time. Such sites will typically be organised into folders labelled “Week 1”, “Week 2”, or a similar temporal arrangement. 31% of sites (n=356) fell into this category. The second largest category of sites (21%, n=244) did not appear to have been subject to any attempt at organisation, at least not in any way that was obvious to an outsider, though that is not to say that they are not informed by their own internal logic. However, these I labelled as “incoherent”. While these two were by far the largest categories. There were also a number of other approaches. 15% of the sites (n=172) were organised by subjects, which I termed the “cognitive model”. (For example a site for a module on the Second World War, might have folders labelled “Relations between the Allies”, “The Axis Powers”, “Military Strategy and so on). A similar number of sites (12%, n=25) were organised by pedagogical format, that is into folders labelled “Lectures”, “Seminars” “Practical work” and so on. There were also a handful of sites organised according to particular lecturers’ material, or in ways which reflected the administrative needs of the module.

Even at this rather simple level of analysis one can begin to see the sources of student complaints about “inconsistency”, though none of these approaches are inherently invalid. The calendar model has something in common with the reading list that is designed to indicate what reading students need to undertake for a particular week of the syllabus. This is also a highly flexible approach. Learning content may well develop as the course is delivered, and any course would change over the years as new research informs the content. Yet the calendar model is not the only model available. It may make more sense to students to use one of the other models described above, depending on what the site is to be used for. If it is seen by students as a place to go to, say, revise for examinations, then they may prefer the cognate approach which could help them with a topic they were struggling with. Equally different members of a student cohort might prefer different approaches, and while technology does make it theoretically possible to present the same information in an almost infinite number of ways, it seems unlikely that academic staff will have the time, or the professional knowledge management skills to anticipate every conceivable demand, let alone deliver a VLE formatted to cope with them.

The next stage of analysis is to see if there was any correlation between the different models and the disciplines. Each site was assigned to a broad subject grouping, loosely but not exactly reflecting the institutions then faculty grouping. Arts, Humanities, Science, Social Sciences, Media, and Technology. In fact it was impossible to detect any correlation at this level, except in one area of technology where one programme leader had created a template for colleagues to follow, and insisted that colleagues did follow it. That raised another possibility. Blackboard sites can be edited by anyone who has an



account with the appropriate privileges, so it seemed reasonable to suppose that those sites which had a large number of editors would be less likely to be consistent in the way they organised their information. In practice this was distorted by the technology example described above, where all the information was posted to a central server, controlled by a smaller group of people, and linked to from Blackboard thus constituting a form of minimum standard. Lecturers here could add to that information if they wished, though a superficial review suggested that few actually did. Once the technology sites were removed from the list, 38 sites were found to have more than 20 people with editing rights (unfortunately it is not possible to discover how many people who have the right to edit the sites, actually do). Of these 16, or just under half fell into the “incoherent” category. While the sample is not large enough to draw any conclusions, it does rather suggest that there may be a case for limiting editing rights to VLEs, though that would have to be balanced against considerations of academic freedom, particularly when we consider what kind of material can be published on a VLE.

Despite the features they have in common, VLEs are not reading lists but they remain an important tool in the university lecturer’s toolbox. In 2005 the UK’s Higher Education Funding Council encouraged the sector in that country to consider how the use of ICT could address student diversity, increase flexibility, integrate study and work with leisure and provide industrialised support. (Fry and Love, 2011; 51). That seems rather a lot to ask of any technology, and may be more based on unrealistic claims about “digital learners” and “millennials”, or on the unrealistic prospects of unlimited knowledge offered by cyberspace (Aboujouade, 2011), than any empirical assessment of what technology is actually used for.

## Conclusions

There are clearly good reasons for this inconsistency. (Kregor et al, 2012, 1397) suggested that “time saving and flexibility gains for students may inversely require additional workload or skill demands for some staff”. First of course there are what librarians would call “collection management” problems. How do you select a work, and what are you saying about that work by the act of including it in a VLE? The same could be said about the inclusion of any given work on a reading list, but reading lists are not subject to the same scrutiny as technological investments. There is also the apparent belief held by some students that a set of lecture slides is in some way a substitute for attending the lecture. As (Maltby and Mackie, 2009, 49) noted “students may learn rapidly that their attendance is not closely monitored nor their absence penalised”. Student attitudes though may be formed by the technology. (Liaw, 2008) refers to studies that cite a lack of a firm framework to encourage learning, and the absence of clarity of design as factors in high drop out rates in e-learning courses.

There is, then a need for a much more intensive investigation into this issue. What is “consistency” and why is it valued by students? What “collection management” skills is it reasonable to ask of academics? Should there be more central control of the VLE, even if it is devolved to local academic departments, or programme leaders?

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