



Virtual Learning Environment Evaluation Working Group Report

E-learning requirements of Staff and Students at UCL

1 Executive Summary

1.1 Background

This report presents the findings of the Virtual Learning Environment Evaluation Working Group on e-learning needs and attitudes of staff and students at UCL. The scope of the investigation comprised four main aspects: (1) generation of a Virtual Learning Environment (VLE) Wishlist, (2) SWOT Analysis of VLEs, (3) User Surveys and (4) Migration, Integration and Service Support, the last aspect considered within the context of the need to replace the current VLE in use at UCL, WebCT CE4.

1.2 Summary of Findings

A diversity of e-learning activities is highly rated at UCL, with staff and student views converging in most of the areas covered in the survey. Where differences have occurred, these could be attributed in all instances to students having rated a particular activity more highly than the rating given by staff. In several of these cases, the higher student rating is due to student use of external online facilities or their use of materials developed outside a particular Department or Faculty.

Both surveys reveal that users are better able to evaluate functionalities with which they are familiar, suggesting that it is imperative to maintain future flexibility with respect to the UCL-supported VLE and to identify mechanisms to promote the use of e-learning and the dissemination of best practice to enable a more co-ordinated

application of many of the local e-learning innovations and practices identified in the staff and student surveys.

The VLE Wishlist and the findings from the user surveys indicate that there is no user-based distinction that supports either WebCT CE6 or Moodle. The decision between these two VLEs, therefore, will be dependent upon other factors. However, survey responses indicate that there will be a need for significant levels of support in the migration from WebCT CE4 to the next UCL-supported VLE.

1.3 Recommendations

As a result of the findings of the investigation into staff and student needs and attitudes towards e-learning, the Virtual Learning Environment Evaluation Working Group would like to recommend the following:

1. that key learning skills be formalised and taught independently of a given course unit, perhaps through a zero-rated course unit
2. that any course unit that includes VLE-based discussion boards ensure that these are monitored on a regular basis by all of the lecturers on the course
3. that analysis of access to VLE-based courses be conducted and provision of guaranteed IT connectivity, if unable to be delivered 24/7, take account of the patterns of student and staff use
4. that the student perception of a need for support in VLE-based collaboration and group work be noted and explored further
5. that all taught courses have a VLE component which is used, as a minimum requirement, for the distribution of available learning materials and administrative information
6. that the usage and the capacity requirements for invigilated online examinations be kept under continuous scrutiny

2 Background

The Virtual Learning Environment Evaluation Working Group (VLEEG) was convened, following the “VLE Futures for UCL” meeting held on 15 May 2006, to investigate future options for a centrally-supported Virtual Learning Environment (VLE) at UCL from the perspective of academic staff and students.

The constitution and membership of the group was comprised of one academic member from each faculty (except Laws), plus staff from Information Systems, Library Services, the Centre for Advancement in Learning and Teaching and a student representative. Numerous attempts were made to include a member from the Faculty of Laws, but these were unsuccessful. The VLEEG communicated regularly through the VLE Working Group course that was set up on WebCT CE4 and met formally on 10 August 2006, 25 October 2006, 29 January 2007, 06 March 2007 and 03 May 2007.

The purpose of the initial meeting on 10 August 2006 was to define the scope and form of the investigation. The following four action points were generated: (1) to develop a VLE ‘wishlist’ that would take into account subject exceptions and look at the needs of undergraduates, postgraduates and those on vocational/CPD courses; (2) to undertake a SWOT analysis of VLEs – based on UCL experience and that of other institutions; (3) to identify key issues for migration, integration and service support; and, (4) to conduct a survey of users, both staff and student, on their use of e-learning.

3 The VLE Wishlist

The VLE Wishlist, presented in Appendix VLEEG 2/1 (06-07), was completed on 14 December 2006 and communicated to UCL’s Information Systems (IS), who had been tasked with identifying possible replacements for WebCT CE4, which is presently in use at UCL and, with the release of WEBCT CE6, will stop receiving company support in January 2008.

4 SWOT Analysis of VLEs

The VLEEG undertook an investigation of the different VLEs available for consideration and began comparing the specifications of each of these against the VLE Wishlist. The principal source of information used for this was the EduTools website (http://www.edutools.info/item_list.jsp?pj=8). However, in correspondence with IS, it became clear that there were only two serious candidate VLEs for UCL, WebCT CE6 and Moodle, and so action point 2 was discontinued.

5 User Surveys

The results of user surveys, action point 4, proposed for investigating current use of online learning, were also identified as the most effective means of identifying key user issues for migration, integration and service support. Action point 3 was, therefore, considered after the survey results had been obtained and analysed.

5.1 Staff Survey

A draft staff survey was constructed by the VLEEG and a pilot survey of staff members familiar with VLE use at UCL (n=12) was conducted using this draft. The survey was constructed in Opinio and was released on 18 January with a closing deadline of 26 January 2007. The response rate was 75%.

Following minor modification, the full staff survey was released on 02 February, with a deadline of 14 February 2007. The survey was sent out to all staff as an email from the Chair of the working group via the all-staff@ucl.ac.uk email list and was publicised in the Provost's newsletter on 06 February. All WebCT Designers (a mailing list of approximately 750 members) and the Teaching and Learning Network (a mailing list of approximately 130 members) were asked to encourage participation in the survey. The all-staff mailing list has 9607 staff members on it. There were 752 stored surveys (7.8% response rate) and 449 completed surveys (4.7% response rate). Based on comments from the respondents, it is believed that the principal reason for failing to complete the survey is because of a lack of involvement in teaching and learning. The results of the staff survey, including examples of Best Practice at UCL, are available at the URL given below and are discussed in Section 5.3 of this report.

<http://www.ucl.ac.uk/learningtechnology/vle-evaluation/Staff-survey-final.doc>

5.2 Student Survey

A draft student survey, based on a modified staff survey with some additional question fields, was conducted and piloted to 13 students, 6 of whom were from the Faculty of Life Sciences, a significant user of WebCT CE4 for teaching and learning. The pilot survey was released on 23 February with a closing deadline of 01 March 2007 and had a 69.2% response rate.

The full student survey was released to all-undergraduates@ucl.ac.uk and to all-postgraduates@ucl.ac.uk via an email from the Chair of the working group on 08 March with a closing deadline of 21 March 2007. The total number of students receiving the email was 28,194, with 13094 undergraduates and 15100 postgraduates, which exceeds the total number of students registered by some 8000 students, indicating that there is some redundancy in the student email lists. Nevertheless, the response rate using these figures was broadly similar to that of staff with 1530 stored responses (5.4%) and 1119 completed responses (4.0%). As

an incentive to complete the survey, a prize draw for £100 of Waterstone's vouchers was announced. The winner of this draw was Mr Simon Claret, an affiliate student reading Computer Sciences. The results of the student survey, including examples of Best Practice at UCL, are available online at the URL below and are discussed in Section 5.3 of this report.

<http://www.ucl.ac.uk/learningtechnology/vle-evaluation/Student-survey-final.doc>

5.3 Survey Results

5.3.1 Respondent Views on E-learning

Each survey began by asking respondents to identify three main benefits and three drawbacks of e-learning. Both staff and students identified the same two benefits:

1. availability and accessibility
2. flexibility, with the ability to work at one's own pace

One staff respondent noted that the provision of a link to WebCT from the Departmental website had helped to promote the Department, since the number of hits on the Departmental website meant that the course in question was ranked first by Google.

Staff and students were also in significant agreement about the disadvantages of e-learning. Both groups identified "technical issues" as being of concern, namely, the requirement for 24 hours a day, 7 days a week accessibility. Concerns were also expressed about Information Technology (IT) issues, with staff identifying a need for the development of their IT skills and students concerned about their access to IT hardware. Staff further identified a need to manage student expectation and facilitate the development of key learning skills, whilst students expressed a concern about a lack of contact with staff.

• The VLEEG would like to recommend, based on the views expressed above:

1. that key learning skills be formalised and taught independently of a given course unit, perhaps through a zero-rated course unit
2. that any course unit that includes VLE-based discussion boards ensure that these are monitored on a regular basis by all of the lecturers on the course
3. that analysis of access to VLE-based courses be conducted and provision of guaranteed IT connectivity, if unable to be delivered 24/7, take account of the patterns of student and staff use

5.3.2 E-learning Activities

In addition to the perceptions of e-learning described above, four main classes of e-learning activity were addressed by the survey:

1. Distribution of content
2. Collaboration and group work
3. Communication
4. Assessment and feedback

Respondents were asked to provide a rating from 1 (not important) to 5 (very important) for the different activities covered by the survey. One of the interesting observations made of the survey results is that most of the data were flat; with few exceptions, there were no clear preferences, as would be indicated by the majority of respondents replying with a “5”, or a “1”. An overall weighted value out of 5 was determined and expressed as a percentage, where 0% = not important and 100% = very important. On this scale, percentage ratings reflect the degree of importance and not the percentage of respondents who felt that the item in question was very important.

The results for staff and student responses have been compared to identify areas of convergence and areas of difference in order to better inform VLE use at UCL. The survey responses have also been broken down by Faculty to identify Faculty-specific differences and endeavour to attribute them to a particular practice. The results by Faculty for staff and students are shown in Appendices VLEEG 5/1 and 5/2 (06-07), respectively.

5.3.2.1 Distribution of Content

The ratings by staff and students for the distribution of different types of content are shown in Table 1, below. There is a very strong rating for the distribution of both learning materials and administrative information. This trend is maintained at Faculty level.

The distribution of interactive learning materials is rated less highly, although students give this category a much higher rating than staff. In general, this trend is maintained at Faculty level for students, although the rating given by students in the Faculties of Arts and Humanities and Laws for interactive learning materials is substantially lower than the rating given by students from other Faculties. Over 50% of students in the Faculties of Biomedical Sciences and Life Sciences gave the distribution of interactive learning materials a “5” rating. Students in these two Faculties are presently using interactive learning materials developed in the Faculty of Life Sciences for both assessment and revision. While 50% of staff in the Faculty of Life Sciences gave interactive learning materials a “5” rating, distribution of this type of content was not perceived as important by the other Faculties. These data suggest that staff and students find it difficult to rate as important content that they are not familiar with using for teaching and learning purposes.

Delivery of multimedia content was another area of difference between staff and students, with students in almost all Faculties giving a positive rating, whilst staff in most Faculties tended to rate the distribution of this content less highly. These data

suggest that students are accessing multimedia elsewhere and wish to see it, or links to it, provided as part of their VLE materials. Multimedia content appears to be perceived by students as a form of material that complements the more traditional methods of information delivery such as lecture handouts, tutorial and coursework materials and textbooks.

Table 1: Distribution of Content

Content type	Staff Rating	Student Rating
Learning Materials	88.6%	94.6%
Administrative Information	86.6%	80.6%
Multimedia	54.0%	74.8%
Interactive Learning Materials	56.0%	77.8%

5.3.2.2 Collaboration and Group Work

The ratings by staff and students for collaboration and group work are shown in Table 2, below. This is an activity that has been highly encouraged and promoted in previous discussions of e-learning. However, the staff and student survey responses do not reflect this. It may be the case that, as hypothesised in Section 5.3.2.1, the lower ratings are due to a lack of familiarity with this particular e-learning activity. At the Faculty level, the highest percentage of staff giving a “5” rating to any of the collaboration types was 26%. Students, in general, gave even fewer “5” ratings with the exception of students in the Faculty of the Built Environment.

Students in the Faculty of the Built Environment gave a significantly higher proportion of “5” ratings to collaboration/group activities (36%) and to the creation of collaborative documents (33%). A substantial part of the curriculum in this Faculty, both undergraduate and postgraduate, is based on collaborative group work. Some of the online collaborative work is conducted through a VLE or Faculty online facility (*i.e.* Bartlett Online), but there is use of external blogs and wikis to exchange information. Anecdotal comments from staff in this Faculty suggest that a standardised, formalised approach/platform would facilitate student collaboration and group work.

Table 2: Collaboration and Group Work

Collaboration type	Staff Rating	Student Rating
Student Collaboration/Group Activities	57.2%	65.2%
Creation of Collaborative Documents	49.0%	65.6%
Develop/Support of Learning Communities	55.8%	64.2%

- The VLEEG would like to recommend that the student perception of a need for support in VLE-based collaboration and group work be noted and explored further

5.3.2.3 Communication

The ratings by staff and students for communication are shown in Table 3, below. Staff and students clearly identify asynchronous communication as an important aspect of e-learning. However, over 50% of staff gave a “1” rating to both forms of synchronous communication. Student responses were equivocal, with 36% of respondents rating synchronous: student-to-teacher communication as unimportant (rating of “1”, or “2”) and 38% rating it as important (rating of “4” or “5”). Student-to-student synchronous communication was rated by 46% of students as being unimportant whilst 30% of students rated it as being important.

Students were equally split over their views on the use of social networking sites, such as MySpace or Facebook, for e-learning purposes, including asynchronous communication, with 38% rating it as beneficial, whilst 37% rated it as not beneficial. Interestingly, individual comments from students in the Faculty of Laws suggest that Facebook is actively being used by teaching staff, for the communication and dissemination of information for students.

These data indicate that discussion fora, whether managed from a VLE or from an external site, are important elements of e-learning for UCL students. Student comments indicate that the effectiveness of discussion boards as a learning resource is highly dependent upon the participation of both staff and students. The participation of staff also provides a means of maintaining contact with students and should be encouraged, as previously indicated in Section 5.3.1 of this report.

Table 3: Communication

Communication type	Staff Rating	Student Rating
Asynchronous: student-teacher	66.6%	79.4%
Asynchronous: student-student	58.6%	69.4%
Synchronous: student-teacher	38.0%	61.0%
Synchronous: student-student	37.8%	65.4%

5.3.2.4 Assessment and Feedback

The ratings by staff and students for assessment are shown in Table 4, below. This is another e-learning activity that received high ratings from UCL students. Online revision and practice exercises, together with online availability of results received the highest ratings.

There is also significant interest on the part of students in being able to submit coursework online. The ratings trends are broadly similar at Faculty level. Individual comments identify concerns about how one would receive “proof” of submission and also highlight that online submission of coursework would allow linking with the plagiarism software, which is seen as desirable. Concerns were also expressed about how cheating and plagiarism could be avoided in online exams. Use of WebCT

for the delivery of online tests/exams is presently undertaken under invigilated conditions in at least one Faculty. Anecdotal comments indicate that this has relieved a substantial burden of marking from staff and has ensured greater harmonisation of the application of assessment criteria.

Table 4: Assessment and Feedback

Assessment and Feedback type	Staff Rating	Student Rating
Online revision & practice exercises	59.4%	87.0%
Online submission of coursework	59.6%	77.0%
Online exams	41.8%	57.8%
Student review: peer assessment	42.4%	60.6%
Progress/results online	57.2%	82.2%

5.3.2.5 Use of E-learning

When asked whether they were presently using e-learning, with examples of e-learning provided, including online course materials, online submission of coursework, use of online communication (discussions, email), tools for collaboration (wikis, blogs), 57% of staff replied in the affirmative, with 43% replying “no”. 73% of students replied “yes”, with 22% replying “no” and 5% replying “don’t know”.

Student use of e-learning is obviously dependent upon staff use of e-learning and the staff survey explored further the reasons for not using e-learning and the ways in which use of e-learning could be encouraged. The main things that staff felt would improve or encourage their use of e-learning were:

- more information about e-learning and the facilities available
- more promotion of e-learning
- good training and support
- examples of how e-learning is being used at UCL and within their discipline
- incentives and reward for using e-learning
- more time to investigate and use e-learning

Reasons for not using e-learning were:

- uncertainty about the possibilities (29% of respondents)
- lack of time (22% of respondents)
- lack of relevance to the teaching/subject area (21% of respondents)
- other (17% of respondents)
- lack of confidence (7% of respondents)
- dislike of the technology (4% of respondents)

That the most frequent reason given for not using e-learning was because staff were uncertain of the possibilities, indicates that more promotion of the existing facilities and support available is required. It also suggests that significant support will be

required during migration from WebCT CE4 to the next UCL-supported VLE, which will be discussed further in Section 6 of this report.

Individual comments indicated that, although very few people suggested that UCL should make the use of e-learning mandatory, staff wanted support and guidance from both UCL and their own departments on the adoption and use of e-learning. Whilst 65% of staff indicated that they would consider using e-learning in the future, 9% said that they would not. These findings, together with strong student support for key VLE-based e-learning activities, as described in the previous sections of this report, suggest that the formulation of a UCL policy with respect to the provision of e-learning components in curriculum delivery would be beneficial in matching staff and student expectations.

- Given the findings from the staff and student surveys regarding user views on e-learning, the VLEEG would like to suggest that all taught courses have a VLE component which is used, as a minimum requirement, for the distribution of available learning materials and administrative information.

6 Migration, Integration and Service Support

The continued use of WebCT CE4 beyond the period required for transition to a new UCL-endorsed VLE is not an option. Migration, therefore, is an obligate consideration. The VLEEG has identified two main issues involved in migration: timing and mechanism.

With respect to the timing of migration, consultation with colleagues presently using WebCT CE4 for teaching delivery suggests that it is highly desirable to have undergraduate cohorts using a single VLE throughout their period of study. This means that first year undergraduate students presently using WebCT CE4 in academic session 2006-2007 will need to stay on this platform for academic sessions 2007-2008 and 2008-2009. Migration to the new VLE would, therefore, be best started for the first year intake starting in 2007-2008, although if WebCT CE4 continued to be available for 2009-2010, then this would provide an extra year in which to begin the migration.

With respect to the mechanism of migration, the staff survey results indicate that academic staff presently using WebCT CE4 will require significant assistance in moving their existing courses across to the new VLE. It is suggested that first year courses be processed as a priority and used as an opportunity for staff training in the configuration of course modules in the new VLE. Anecdotal evidence from within UCL and from other institutions suggests that the *de novo* creation of courses in a new VLE is ultimately going to be more efficient than the porting and reconfiguration of existing WebCT CE4 courses. The administration and management of WebCT courses at present varies widely from Department to Department and in different

Faculties. A coordinated support effort will be required to ensure smooth migration to the new UCL-supported VLE.

7 Other Issues

7.1 Assessment

The survey responses outlined in Section 5.3.2.4 of this report indicate that the use of online exams for assessment purposes raises concerns about possibilities for cheating. Conducting online exams under invigilated conditions, especially with computer configurations that prevent the opening of browser windows other than the exam window, reduces the possibility of cheating to levels believed to be at least comparable to those of invigilated tests/examinations written on paper.

One of the issues anticipated, but not raised, in the survey results was the capacity available for invigilated online examinations. Migration to online examinations affords distinct advantages, offering standardised marking with no issue of reliability/consistency, obviating the need for second marking and reducing the effort required for manual marking. Disadvantages include the need to set challenging questions within the constraints of the online assessment programming and, significantly, the need for appropriate facilities in which to conduct online examinations. As the uptake of online examinations increases, the availability of appropriate facilities will become a significant factor in e-learning delivery.

Online examinations have been conducted using WebCT CE4 for the past two years on several courses offered within the Faculty of Life Sciences. As an example, BIOC1001 Cellular and Molecular Biology is a first year course offered to students within the Faculty of Life Sciences and other Faculties at UCL. In academic session 2007-2008, the number of students taking BIOC1001 will increase significantly as this course expands to encompass students presently taking BIOC1002 and BIOC1003. The anticipated enrolment will be approximately 450 students. Assessment will include five one-hour online tests. The online assessment component of BIOC1001, therefore, will require 2250 student hours of invigilated computer-based examination. This is a 150% increase from academic session 2006-2007, where the online examination component of BIOC1001 was 1500 hours and BIOC1002 and BIOC1003 did not conduct online tests.

This example highlights that each course that migrates to the use of invigilated online examinations will put increased pressure on the existing facilities. At present, the need is met by simultaneously booking the Cruciform Dry Laboratories 3 and 4, the Cruciform Cluster Room and the Torrington Place Cluster. Despite the use of these facilities, multiple sessions must be timetabled. Even the addition of the cluster facilities in the Science Library will not allow BIOC1001 students to sit each examination at a single sitting, requiring the use of multiple, equivalent, examinations. Uptake of online examinations by other large courses, such as those offered by the Department of Chemistry, with numbers comparable to BIOC1001, will

put significant pressure on the cluster facilities, which are also used by students to access other e-learning activities.

- Whether invigilated computer-based examination facilities are provided in-house or outsourced, the demand is likely to increase substantially in coming years. The VLEEG would like to recommend that the usage and the capacity requirements for invigilated online examinations be kept under continuous scrutiny.

8 Summary

A diversity of e-learning activities is highly rated at UCL, with staff and student views converging in most of the areas covered in the survey. Where differences have occurred, these could be attributed in all instances to students having rated a particular activity more highly than the rating given by staff. In several of these cases, the higher student rating is due to student use of external online facilities or their use of materials developed outside a particular Department or Faculty.

Both surveys reveal that users are better able to evaluate functionalities with which they are familiar, suggesting that it is imperative to maintain future flexibility with respect to the UCL-supported VLE and to identify mechanisms to promote the use of e-learning and the dissemination of best practice. This will enable a more co-ordinated application of many of the local e-learning innovations and practices identified in the staff and student surveys.

The VLE Wishlist and the findings from the user surveys indicate that there is no user-based distinction that supports a preference for either WebCT CE6 or Moodle. The decision between these two VLEs, therefore, will be dependent upon other factors. However, survey responses indicate that there will be a need for significant levels of support in the migration from WebCT CE4 to the next UCL-supported VLE.

Dr Andrea Townsend-Nicholson Chair (Faculty of Life Sciences)
Dr Andrea Sella Co-Chair (Faculty of Maths and Physical Sciences)
Ms Julie Voce Secretary (Information Systems)

Mr Michael Baron (Student representative)
Dr Will Coppola (Faculty of Biomedical Sciences)
Mr Chris Dillon (Information Systems/Faculty of Arts & Humanities)
Dr Paul Griseri (Faculty of Engineering)
Dr Jane Hughes (Centre for the Advancement of Learning and Teaching)
Mr Nick Mann (Faculty of Social and Historical Sciences)
Mr Peter McLennan (Faculty of the Built Environment)
Mr Martin Reid (Library)
Mr Ulrich Tiedau (Faculty of Arts & Humanities)