



## Benchmarking across universities: A framework for LMS analysis

**Lynnae Rankine**

University of Western Sydney

**Leigh Stevenson**

Griffith University

**Janne Malfroy**

University of Western Sydney

**Kevin Ashford-Rowe**

Griffith University

Enterprise wide learning management systems are integral to university learning and teaching environments. Griffith University and the University of Western Sydney (UWS) are predominantly face-to-face, multi-campus teaching institutions with similar size student bodies and academic communities. Both Griffith and UWS utilise a single enterprise wide e-learning system, although the systems are different. This paper describes a benchmarking activity between the two universities to determine the level and quality of the uptake of the e-learning system. A framework was developed as a product of the partnership and applied to a representative sample of e-learning sites. The results of the benchmarking exercise showed that there are parallel trends between the two institutions in how the LMS is being used, however with distinct differences in specific areas.

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### Introduction

Increasingly institutions are engaging in benchmarking activities to review, monitor and improve institutional performance against identified goals. According to Stella and Woodhouse (p6, 2007) "Benchmarking requires an emphasis on systematic means of making comparisons to identify areas that need improvement. It involves continually questioning how processes are performed, seeking out best practices, and implementing new models of operation." The Bradley Report (2008) supports the benefits of benchmarking activities as a process of self-regulation to improve performance. The second cycle of audits being conducted by the Australian University Quality Agency (AUQA) will focus on "academic standards and outcomes" and Bradley (2008) suggests that "external validation of standards" can be achieved through targeted benchmarking arrangements. It is against this backdrop that the University of Western Sydney and Griffith University established a benchmarking relationship to compare practices and standards. One of the benchmarking projects was an institutional analysis of the Learning Management System (LMS).

Enterprise wide learning management systems (LMS) are integral to University learning and teaching environments. In many institutions the LMS is used in a variety of ways; to provide a range of learning resources and activities for students to engage with, to facilitate communication and collaboration between students and teaching staff; and provide evaluation and assessment opportunities. In addition to these pedagogical benefits there are administrative and management tools to help deliver online units to students regardless of their physical location.

In May 2008, a benchmarking project was established to determine the level and quality of the uptake of the LMS of both institutions. The investigation involved a quantitative and qualitative analysis of a representative sample of sites from Semester 1, 2008 to gauge the institutional uptake of the enterprise LMS. This paper describes a framework that was developed by the Project Team to facilitate the analysis of LMS usage and discusses the results of the application of this framework across the LMS at both institutions.

## Project overview

Both Universities offer programs that are predominantly delivered face-to-face across multiple campuses dispersed within a similarly sized geographical area. Both Universities use a different LMS version; UWS uses Blackboard Campus Edition v6 and Griffith uses Blackboard Academic Suite v8. Previous studies on LMS usage have tended to focus on database query reports (Phillips, 2006) and questionnaires (Coates, 2005, Benson, 2006, Weaver, et al 2008). The ToolUse script, referred to in Phillip's 2006 paper and in a study by Koppi and Lowe (2005) is useful in identifying how many times WebCT's tools were used and which sites used them, but they are not designed to distinguish for example, between a discussion board that was set up with topics to encourage debate and actively used by students, and a discussion board that had an occasional announcement from a lecturer. Tool usage reports have an inbuilt limitation in that they don't report on the functionality and purpose of particular tools. The other key factor in not relying on a database query report was that it was not feasible to run a single report across the two different systems.

Other frameworks offer comprehensive means for analysing e-learning sites. For example, the E-Learning Maturity Model "provides a means by which institutions can assess and compare their capability to sustainably develop, deploy and support e-learning. The eMM is based on the ideas of the Capability Maturity Model and SPICE (Software Process Improvement and Capability dEtermination) methodologies." (Marshall) These frameworks, while very valuable, were not suitable for the benchmarking study carried out by the two universities. Team members from both universities developed a new framework that can be used to provide regular, ongoing 'snapshots' of LMS usage. This will enable each university to track change over time, as well as provide useful data that can contribute to better LMS management, academic staff development and institutional planning.

## Development and application of LMS usage analysis framework

In undertaking this activity the Project Team recognised that there is both complexity and variability in how the LMS is being used for a variety of learning and teaching initiatives, and that ultimately there was a need for more mature indicators to capture a snapshot of LMS usage. In the light of this, a framework (see below) was jointly developed by the two institutions which built upon a framework used in a previous sample study at UWS (Rankine and Malfroy, 2006). The purpose of this framework was to further develop a set of pedagogical content types and tools common to online unit/courses. The framework can be broken down into smaller elements to support greater quantitative and qualitative data collection and more detailed analysis.

**Table 1 below shows the LMS usage analysis framework and its components**

| Content   | Communication      | Collaboration             | Assessment                                    | Explicit Learner Support  |
|---|--------------------|---------------------------|---|---|
| Unit/Course Outline   | Chat               | Wikis                     | Reflective learning journals                  | Text-matching software (e.g. SafeAssign, Turnitin)                          |
| Lecture and Tutorial Notes  | Announcements      | Discussion Board *        | Assignment drop boxes                         | Links to student support materials (internally provided)                    |
| Media used in lectures and tutorials (i.e. lectopia, podcast, videocasts) | Discussion Board * | Virtual Classroom         | Quizzes                                       | Links to student support materials (externally provided)                    |
| Links to scholarly information (readings)                                 | Email              | Voice-based communication | My Grades                                     | Additional learning support advice (i.e. learning guide, discipline guides) |
| Links to content resources (i.e. websites)                                | Blogs              |                           | Templates, practice activities and past exams |   |
| Interactive resources (.swf .fla .flv and other file types)               |                    |                           | Surveys                                       |   |

Discussion board can be used as either a communication tool or a collaboration tool

The project team then agreed on a method to generate samples for each institution, and a process for applying the framework in a manner that would permit meaningful comparison between the participating university's results. An educational designer and e-learning staff developer reviewed the sites, applied the framework and recorded the incidence of each function/tool across the sample. This approach provided consistency in applying the framework.

The sample was generated by:

1. Determining all course/unit sites available in the LMS
2. Excluding any course/unit sites that had not been actively used by academic staff during Semester 1 2008
3. Excluding any course/unit sites developed with "professional" assistance, for example some units had received considerable assistance from educational designers and multi-media developers.
4. Excluding any "joined" courses/units where enrolments from another course/unit have been re-directed to the "parent" unit (this step was taken to avoid replication of results)
5. Randomly selecting 10% of courses/units from the pool while maintaining the undergraduate and postgraduate ratio in the sample.

The sample size from both institutions was 10% of the course/unit sites in a semester although the overall allocation of sites operates differently at the two universities. At Griffith, all offerings of a course/unit have a discrete site, whereas at UWS a course/unit has a single site, no matter how many offerings it has. The number of sites was much larger at Griffith University and the project team had some concerns about the representation of the 10%. Therefore, in addition to the initial 10% sample measured, UWS undertook a second sample of 10% as a means to validate the first sample. The results from the additional 10% of UWS sites replicated the first 10% results, indicating that although smaller than the Griffith sample set, it appeared to be representative of the total set of sites.

The framework (at Table 1) was initially trialed by both institutions with a sample of three sites. These three sites were then blind reviewed by the other institution and results were compared to make sure the framework was being consistently applied by both institutions. Slight modifications were made to the framework before the full assessment of sites commenced.

## Results and discussion

Overall, the benchmarking activity showed similar results across both universities.

*Content:* Both universities require unit/course outlines to be posted in sites and the results showed that there is almost 100% compliance for this item. For both universities, staff posted unit/course outlines, lecture notes, core unit/course materials and additional links to content outside of the LMS.

Most sites contained a wide range of lecture related material such as course/unit outlines, lecture notes, reading material, and web links. There are examples of the LMS being used to provide videocasts, podcasts, lecture recordings and interactive resources but these were not widespread across the LMS.

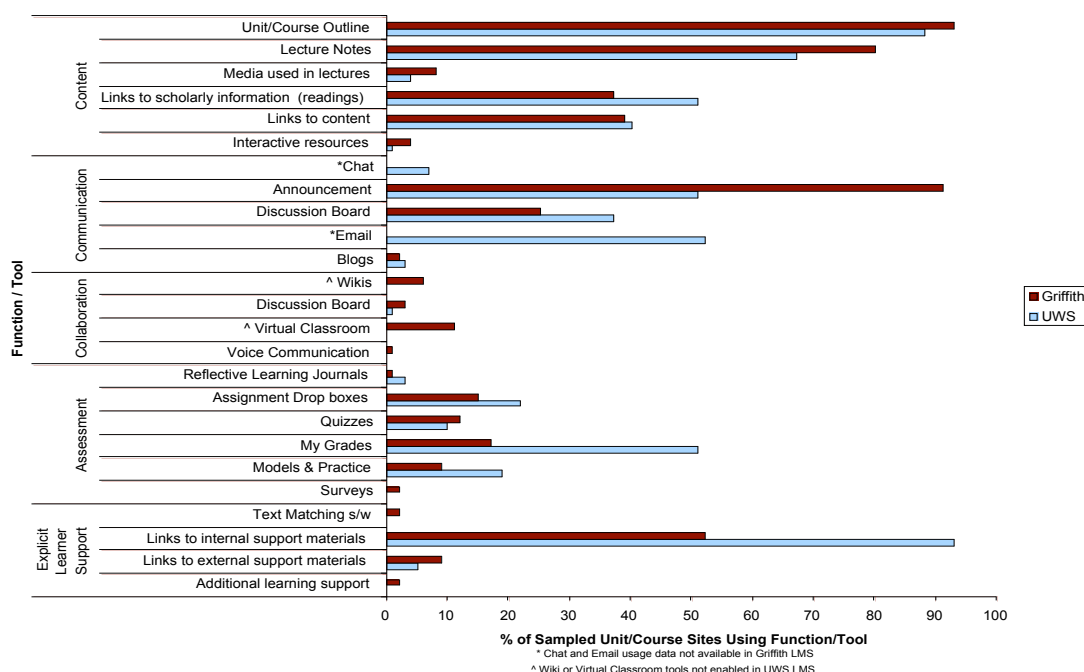
*Communication:* For both universities there was extensive use of announcements to communicate important information to students, with a much greater uptake of this feature at Griffith. There was similar usage of discussion boards for communication purposes across both institutions with UWS having a slightly greater uptake.

*Collaboration:* The study indicated that the online collaboration features of the LMS are not extensively used in many of the sites sampled for both universities.

The use of the LMS for communication purposes is strong. The use of discussion boards and announcements to communicate important information to students was evident across the LMS. Collaboration may well be happening in the face to face contexts or it may not be a feature of these units at all. Synchronous chat activities were not widely used across the LMS with both institutions reporting small instances of use of this.

*Assessment:* Generally the study showed similar use of quizzes and assignment drop boxes across both institutions. However, UWS showed a much higher use of the MyGrades tool (to release student grades) and the provision of models and practice tasks for students.

**Table 2: Shows the results from the application of the LMS usage framework**



*Explicit learner support:* For both universities there was substantial provision of explicit learner support. The use of text matching software was minimal as it was in pilot mode at both universities and not yet fully enabled at the time of data collection.

The results of the benchmarking exercise showed that there are parallel trends between the two institutions in how the LMS is being used, however with distinct differences in specific areas. The data also shows how the affordances of the LMS have helped academic staff in administering their course/unit, and managing assessment submissions and grades.

It was evident that the LMS was being used to provide a rich and varied range of explicit learner supports such as guides, website links, and practice exams and examples.

The framework deliberately included aspects of usage that are in relatively early uptake stages in order to establish a benchmark level for future reports. Therefore there is comparatively limited uptake of wikis, virtual classroom, text matching software and learning journals. It is acknowledged however that these technologies are relatively new at both institutions and it is anticipated that future studies would show a greater uptake of these technologies.

## Conclusion

The degree of consistency in LMS usage across two institutions was quite remarkable considering the different locations, contexts, systems and support services. The results confirmed the strong focus on LMS usage to convey resources and content and to manage student communication and assessment grades. The results also confirmed a growing interest in using other features of the LMS to provide more interactivity and foster collaboration. The study confirmed compliance with institutional policies and highlighted the many different ways in which staff and students engage with the features of an LMS.

A major outcome from this project has been the development of a framework that enables central units to analyse LMS usage across a whole institution. The results provide valuable data for development and planning purposes. Further studies into LMS usage will continue to refine the framework.

The process of benchmarking was a valuable activity that allowed teams from two universities to compare different LMS profiles, seek out best practices and engage in fruitful collaboration about best ways to support quality e-learning design.

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**Authors:** Lynnae Rankine, University of Western Sydney. Email: [l.rankine@uws.edu.au](mailto:l.rankine@uws.edu.au)  
Leigh Stevenson, Griffith University.  
Janne Malfroy, University of Western Sydney.  
Kevin Ashford-Rowe, Griffith University.

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