

1. Title page

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University of KwaZulu-Natal Learning Management System (LMS) Review

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2. Introduction

The Learning Management System (LMS) Review reports on the current status of online learning management systems at the University of KwaZulu-Natal at the end of 2007. It also seeks to make recommendations on the future deployment of learning management systems.

The review was initiated in response to rapid developments and advances in open source learning management technologies worldwide and to ascertain whether UKZN's delivery and provision of facilities matched up to these developments. In addition, part of the review involved a survey of online course and module developers at UKZN in an attempt to provide a list of prioritized needs for any future or different system.

Currently UKZN has a widely used implementation of the OLS (Open Learning System, developed by ITEd, UKZN) deployed in 2002 as a replacement to WebCT, a proprietary learning management system. Cost was the major motivating factor in the decision to move from WebCT. Up to the end of 2007, the OLS database had a registration of 1019 Courses, 18 540 users, 640 facilitators and 400 guest users. These are not necessarily current.

Recently an initiative in the School of Humanities and Social Sciences has seen the introduction of a widely used open source based LMS, known as Moodle, for course and module developers in this school.

Five years after UKZN's OLS implementation, a number of widely used and critically acclaimed open source LMS's have emerged, forcing a rethink of the currently provided learning management facilities at UKZN.

3. Aims

The aims of the review were :

- To determine Learning Management System user needs at UKZN by means of an online survey.
- To establish leading alternative learning management systems to UKZN's Open Learning System.
- To select an alternative system for implementation in phase II of the LMS review project.

4. Online Survey

An online survey was conducted over a period of about four weeks among current and potential learning management system course developers. Email and Notices (via the UKZN Notice system) were distributed asking for responses to the survey.

In all there were only 38 responses, of which 4 said they had not used a learning management system before (either OLS or any other LMS). Of the 34 who had used an LMS, 28 had or are using OLS, 2 Moodle and 4 any other LMS.

5. LMS Usage

The following table gives some indication as to the main use of a LMS at UKZN. As can be seen a large part of this usage involves content distribution.

A full range of learning and communication tools provided for a very interactive course where participation, peer review and reflection are important	12	(35%)
Some interaction and communication but mainly for content distribution	15	(44%)
Content distribution and particularly for online testing and grading (marking)	0	(0%)
Mainly for testing and grading	0	(0%)
Content distribution only	7	(21%)

6. Satisfaction levels for OLS

OLS is the system currently being used at UKZN.

The percentage of respondents that were very happy about using OLS - (score of 8 or more on a rating of 1-10) amounted to 50%. A further 20% were happy (rating of 6-7/10). For the rest, 18 % were noncommittal (score of 5/10) and unhappy or very unhappy (score of 4 or below) - 12 %

Thus the survey showed that 70% were largely happy with the usage and support of OLS at UKZN. However, the following comments were recorded when respondents were asked what OLS's shortcomings might be:

Insufficient support:

Most said that there was not enough support. Also it was perceived that the system was difficult to use for developers and users (staff and students). This is related and linked to the lack of support staff over the last few years. (Compare our current compliment of 4, compared to UCT's equivalent Centre for Educational Technology - 16 members). The OLS system itself may not be the problem, if one looks at the levels of satisfaction shown in the previous section, but rather that, in general LMS's are sophisticated tools trying to cater for a wide range of firstly, curricula, and secondly a diverse number of educational approaches.

Lack of learning tools:

In addition, the next largest complaint was to do with the lack of tools as compared to other online learning systems (21 %). This is also linked to the lack of staff locally and internationally in the development of OLS (Although OLS is open source and listed on software distribution websites such as Sourceforge, it has no significant following outside of UKZN – there are likely to be a number of reasons for this). This contributes to reasons for choosing an alternative system, where developers are more prevalent, active and globally based.

7. User rating of tools

The following list of learning tools are rated by participants in terms of their perceived contribution to successful online learning. (The tools are compared simply by adding the 'positive' percentage scores together (no weighting) i.e. important and very important.)

Course Information Tools:

Simple Text Course Outline:	86%
Announcements:	84%
RSS Feed:	39%

Note: RSS Feed scored 42% for No Opinion - this probably indicates that many people are unaware of what an RSS feed is.

Communication Tools

Discussion Forum	79%
Chat	67%
Online Whiteboard	52%
Online Video conferencing	42%

A relatively high score of "No Opinion" for the last two types of tools possibly indicates a lack of knowledge of how these tools operate.

Assessment Tools

Online assignment submission	76%
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Full Assessment and Grading	70%
Self assessment	70%

Presentation and Collaborative tools

Online peer review	60%
Diary/Blog	50%
Group Wiki	43%

Again high percentage of No opinion for the last two in this category. Sadly, these low (in comparison) scores could possibly reflect a low involvement or interest on the part of staff for a constructivist learning paradigm.

Student management

Track student usage	83%
Student Management System uploads and updates	82%
Role assignments	80%
Grouping	78%

The high scores above indicate that any LMS chosen for use at UKZN must have a comprehensive user (student) management system with a variety of tools available. On a technical aside, this will mean that it MUST have LDAP (the network authentication system used at UKZN) capabilities built in.

Content management

File upload and display	86%
Effective HTML (rich text) editor	73%
Online Equation editor	42%

The low ranking of the online equation editor (in conjunction with the 21% of "No Opinion") may not be because of the lack of importance of this tool but rather that it is a tool intended for a small minority of users because of its use in specific, and not general, academic fields.

8. Alternative Learning Management Systems

Though support is available, and support staff are knowledgeable enough to sustain the current reasonably stable system, it is limited in terms of being able to provide ongoing presentations, workshops and training to course facilitators. Where there is a complete lack, is in the provision for the future development of the OLS in keeping up with new technological and educational trends. With this in mind, six leading LMS's were investigated in terms of their popularity and strengths in their respective ability to provide a complete set of tools for online course development and provision.

In discussing and comparing the merits of the above systems, it needs to be emphasized that all, except WebCT/Blackboard, are based on the Open Source software licensing model. Open Source based LMS's have a large support base among academic institutions, largely because of low cost and rapid development environments (Amory, Gachie, Clarke, & Yates, 2004).

A summary of these systems, with regard to their most noteworthy features follows:

(For a more complete comparison, refer to a study done by the Western Cooperative for Educational Telecommunications (WCET, 2008))

- - WebCT/Blackboard** This is one of the most widely used commercial products. It is also in use at other KwaZulu-Natal Institutions, such as Durban University of Technology. Another strong recommendation is that there are some legacy skills remaining from its previous deployment at at UKZN.
 - Atutor** Atutor is an LMS with the most compliance to the **W3C WCAG 1.0 accessibility specifications**. These specifications are for systems where catering for learners with disabilities is important.
 - DOKEOS** This has fairly wide usage in Europe. Its user interface is most similar to the existing OLS
 - KEWL** This system, developed locally at the University of the Western Cape, is in use at a number of African universities. Further developments are continuing.
 - Moodle** Moodle is a very widely used LMS, and has been successfully installed in some of the largest, in terms of student numbers, universities in the World. The Open University, UK, with over 600 000 correspondence students is an example. Moodle was also rated at 11th in the “Top 100 Tools for Learning in 2008” (Knight, 2008). This was the highest rated learning management system.
 - Sakai** Sakai has large scale backing from influential tertiary institutions world wide. It is very oriented towards collaborative/portfolio based learning tools. It is used in South Africa by UCT, UNISA .

9. Conclusions and Recommendations

The Open Learning System developed by the University of KwaZulu-Natal can be seen to be adequate in providing for the vast majority of online tools

recognised by experts as being of the highest value in the learning management system environment . However, it must be seen that without adequate resources for development, the system will soon lag behind other Open Source Systems enjoying large World Wide support.

The fact that Moodle already has an established base at UKZN with a significant number of users, both module developers and students, makes it a leading contender to ultimately replace OLS. Its highest ranking in the category of Course management systems in the “Top 100 tools for Learning - Spring 2008 along with its deployment at institutions having very large student populations such as the Open University, UK, make it an obvious choice as a successor to OLS. Moodle's strength lies in its worldwide developer base where rapid development and incorporation of the latest online learning technology takes place, keeping it at the forefront of open source LMS developments.

The next phase in providing for and extending online learning facilities at UKZN will include the garnering of support for the move to Moodle; planning the moving of modules and materials to the new learning management system; development of workshops and training for course and module developers and the planning, acquiring and deployment of hardware to cater for the parallel operation of both systems until this phase is complete. A rough estimate is that this process will take approximately 18 months to be fully completed.

10. References

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