

What do university students expect from teachers using an LMS?



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In October 2006, a survey was conducted at an Australian university that was aimed at gaining student feedback on future and current IT services. Two questions were specifically targeted at finding out about students' use of the university's central Learning Management System (LMS). The LMS being used at that time was *Blackboard* (Bb) version 6.3. While one question asked whether or not students used the system (N=6,724), the second question invited them to comment on what they liked and disliked about the LMS (N=4,538). The latter question elicited rich qualitative data that was analysed using two methods. Initial themes were noted through a manual analysis and then data was run through a software program called *Leximancer*. This program analysed the conceptual structure of the data. While some themes related to student preferences around the LMS itself, a great deal of the data was linked to the ways the system was being used by university teachers. Student expectations around teacher use of the LMS form the focus of this paper and consequential challenges and future directions for staff development are considered.

Keywords: LMS, e-learning, e-teaching, learner expectations

Introduction

The availability of enterprise-level Learning Management Systems (LMS) for various modes and blends of university learning and teaching is now commonplace. At some universities the use of the LMS is mandatory. At others, such as ours, we have maintained a less top down approach in the hope that our teachers will choose to use the technology for the 'right' pedagogical reasons. Of course, in reality, the quality of learning offered through our LMS varies as greatly as the quality of learning offered in our lecture halls. There is also a pervading sense that our learners may be more digitally able than ourselves and that their expectations of eLearning may exceed our abilities and possibly even the capabilities of the LMS that we are using. A survey was conducted in October 2006 to find out a little more about what our students *were* thinking and we received excellent feedback with over 4,500 student responses. We invited them to comment on what they liked and disliked about the LMS, Blackboard (Bb) Version 6.3 in an open-ended question. Initial themes derived from these qualitative responses were noted manually before running the data through *Leximancer*. This software offered a unique conceptual analysis of student responses and the ability to explore concepts and their inter-relationships further. Our analysis revealed that while some themes related to student preferences around the LMS itself, a great deal of the responses commented on the ways the system was being utilised by university teachers. This finding was congruent with other large institutional surveys on LMS's (Center for Teaching & Learning Newsletter, Winter 2006; Robbie, 2005; Weaver, Chenicheri, & Spratt, 2005). Consequently the focus of this paper is on student expectations of teachers' use of LMS's. We discuss our findings in the context of similar studies and with implications for staff development in both the technical and pedagogical uses of the LMS. The qualitative nature of our data added a richness that can be missed in more quantitative surveys. Using both the initial themes noted and the special features of the program, our analysis revealed key student messages about their expectations of lecturers' use of the system.

Institutional context

The survey was administered at an Australian G08 sandstone university. A centrally supported LMS was initially made available to staff and students in late 1998 (WebCT) and then migrated to the Bb system in early 2005. Uptake of the new system since its introduction continues with momentum. In 2004, less than 20% of university courses were offered via the LMS and in 2007 43% are using the system. The 2000 staff were offered a range of opportunities to learn more about the system and how it could be used from both technical and pedagogical perspectives as well as through peer examples and with local mentors. This included working with instructional designers on specific projects, attending centrally offered courses (including online courses) and situated workshops by request, a localised mentoring program and a range of self-paced resources. For staff, hands-on training (centrally offered and by request) was by far

the most popular form of staff development. With the initial system roll-out, hands-on training comprised courses on the basics of the system, communication, assessment, content and copyright. These had been reduced to basic training and situated training by request in subsequent years. From 2005 to the end of 2006 (when the survey was conducted), the university had delivered hands-on training courses to over 550 staff members. Pedagogically-focused staff development had been attended by over 100 staff members and requests for locally tailored delivered situated staff development had been strong. By the end of 2006 there were approximately 1500 staff using the system and it was likely that approximately half of these staff users had not attended any training or staff development.

When implemented, all forms of staff development were evaluated and responses were generally positive. Staff were also surveyed after a pilot implementation of the Bb LMS and these responses informed the development of the initial suite of staff development programs. Student evaluations on some elements of online learning and technology use are routinely surveyed as part of the institutional student experience survey. However, student perceptions of the new LMS were not specifically surveyed until 2006.

Student expectations around teachers' use of the LMS

Many institutions have run student surveys on the use of their LMS and it was useful to locate some of these studies and compare findings. As mentioned, many reported that students took the opportunity to give feedback on teachers' use of the system (Center for Teaching & Learning Newsletter, Winter 2006; Robbie, 2005; Weaver et al., 2005). A smaller scale survey was also run at this university in 2002, where again, student feedback on teacher use was common throughout the student data (Holzl, 2003). A frequent theme across these studies has been that many students feel that their university teachers are not using the LMS to its full potential.

In the 2002 study at this university (Holzl, 2003), students (N=177) were invited to comment on what they liked and disliked about the LMS (WebCT), what they found most useful and what other features they would like to see in the system (Holzl, 2003). Students indicated that they most like the computer mediated communication (CMC) tools (36.7%), the access to course information and content (21.5%), flexibility of access (19.2%) and the ease of use of the system (18.6%). They also found these tools and features of the system most useful as well as quizzes. In their responses pertaining to their dislikes of the system, they canvassed some technical issues with the system and 16 students were critical of the way the system was being used by lecturers, both technically and from an instructional design perspective.

In a longitudinal study (2001- 2005) at Swinburne University on students' experience of the Bb LMS by Robbie (2005) and Mering and Robbie (2004) found that students wanted lecturers to use the system more and make better use of the tools available in the LMS. In the survey students indicated that they were dissatisfied with:

- the level of use (and non-use) by lecturers
- the poor instructional design of the courses
- the illogical structure of the courses and materials (navigation)
- out-of-date content
- lack of timely feedback
- the level of interaction with lecturers and tutors
- inconsistencies between courses in terms of interaction and content made available
- lack of use of LMS tools that were available to lecturers.

Students were frustrated by inconsistencies in the use of the LMS, illogical layout and breadth of materials available online and by finding old announcements still available on their sites. They were enthusiastic about the use of discussion forums but realised that the quality of use of the forums was dependant on the teachers who used them. Students were also concerned that lecturers did not take full advantage of the system in terms of their learning and did not know how to use the system effectively (Mering & Robbie, 2004).

A survey of the WebCT system was conducted at Monash University with participation from 2,500 students (Weaver et al., 2005). While students were generally positive about the LMS itself and the *good* learning designs they *had* experienced, criticisms again illustrated that students wanted more consistent and high quality use of the system by lecturers. Poorly designed sites were commented on in terms of lack of interaction and feedback from staff, outdated information and links and the quality of teaching activities. Perceptions of poor quality use were reported to be more common in areas of the university where use of the system was mandated compared to where use was a choice for the lecturer.

More recently, at the University of Denver, 7,947 students were surveyed on how their LMS (Bb) was being used and supported at the university (Center for Teaching & Learning Newsletter, Winter 2006). The survey consisted of both multiple choice and open-ended questions. The majority of the 1821 students who responded to the survey were happy with the LMS and found it easy to use with less than 3% finding it difficult. Students liked the flexible access to learning materials (80.2%), the improved communication with teachers (59.7%) and other students (34.8%) and that the LMS facilitated group collaboration on projects (20%). Other major positive themes were that students enjoyed access to their grades and could clarify and view assignments. When questioned about the major drawbacks of the system, students predominantly commented on the ways teachers used it. In particular they were dissatisfied that:

- not all teachers used the LMS
- some only used it minimally (e.g. posting a syllabus only)
- teachers didn't know how to use it effectively or to its potential
- there was inconsistency in how it was used
- some teachers relied on it too much (rather than using a variety of teaching modes).

In summary, students in all surveys were generally enthusiastic about the potential of the system but expressed a desire for wider use of the system and that their teachers use the system more consistently. They expected their teachers to be able to use the LMS tools effectively, follow good instructional design principles, keep information up-to-date and design for more communication and interactivity. It is interesting to note how these themes have been pervasive over time despite the increasingly diverse and creative staff development opportunities being available to university teachers in this area.

Method

An online survey was distributed to students with the aim of gaining feedback on future and current IT services. At the end of this survey there were two questions, one closed and one open, relating to the university's central LMS. The data for this paper was derived from the final open ended question that asked students to comment on what they liked or disliked about the centrally supported LMS. The original intent of this question was to find out about students' perceptions of the LMS to inform future planning and expenditure. It was deliberately posited as an unstructured open question. This served the purpose of giving students a wide breadth of responses that were not influenced by anticipated question replies. After analysis it was anticipated that emergent themes would be probed through more in-depth enquiries. Although students did comment on the LMS itself (generally positively), a thematic analysis of the data revealed that many students' comments were strongly related to their expectations around *how* the system should be used by their university teachers.

Participants and data collection

The survey was made available to all students online using *Ultimate Survey* for a period of two weeks. At the time of the survey the total student population for the institution was 37,177, and all enrolled students were invited to participate. At the time of the survey 35.5% of institutional courses used the central LMS. Of the 6,733 respondents to the overall survey, 17.6% indicated that they did not use the LMS when they answered 'no' to a closed question on whether they used the LMS for any of their courses. A further 1.4% (94 students) were unsure. A total of 4,538 students took the opportunity to voice their opinions on their like and dislikes about the system. As a small incentive to participate, survey respondents were included in a prize draw for a 2GB *iPod Nano*. The web survey was promoted via an email directly to students (most successful strategy) and a spotlight article on the IT services website (limited success).

Data analysis

Initially the volume of text from the open ended question (123 A4 pages) was somewhat daunting to the researcher. However, using a combination of manual and electronic methods proved to be insightful and additionally, confirmed the main themes that emerged. Coding for initial themes was achieved through a combination of manually reading through responses and performing a spell check to prepare the data for a software program. Many of the respondents had used SMS style language which could not be effectively processed by the software. This somewhat laborious process yielded broad themes and concepts. The data was subsequently run through a software program called *Leximancer*. This program mines data to produce a concept map that illustrates the visual conceptual structure of the information contained in text-based documents. It also counts the frequency of instances of concepts and allows the user to interactively

explore the strength of inter-relations between concepts. *Leximancer* also provides an electronic mechanism for locating the occurrences of concepts in the original text. These uses of the software triangulated themes generated from the initial manual analysis and allowed for a more efficient exploration of indicative qualitative comments around the various themes. The concept maps that *Leximancer* generates in colour, are a useful tool for analysing the data (See Figure 1). According to the *Leximancer* Manual Version 2.23, (Smith, 2007), the map illustrates five types of information about the text:

- the main concepts from the text document
- the frequency with which these concepts occur
- the frequency of co-occurrence of main concepts
- the centrality of concepts
- thematic group of concepts that demonstrate similarity of context.

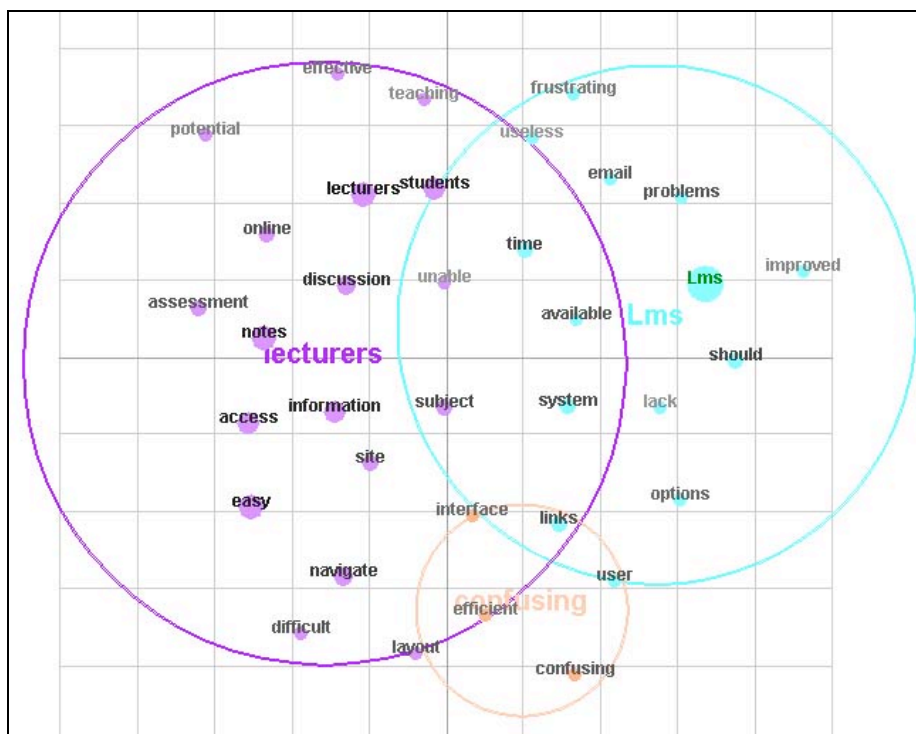


Figure 1: Concepts related to themes 'lecturer', 'LMS' and 'confusing'

The strength of a concept is related to its frequency in the text and varies from highly frequent (darker, brighter text) to less frequent (lighter text). The size of the point with the concept text indicates its connectedness and the colour (not shown in this paper) indicates the thematic group. Thematic groups are also illustrated using the larger circles that surround groups of concepts. These can also be explored dynamically by adjusting theme sizes in the map. Relationships between concepts can also be explored by left-clicking on a concept in the map to see lines connecting it to other concepts. Again the brightness of the line indicates the strength of connectedness. Finally, concepts that appear in similar contexts appear in similar regions of the map.

Findings

The findings discussed here focus on student expectations of how the system was being used by lecturers. Themes derived from the initial manual analysis of student preferences around the LMS itself and the ways it was used by their lecturers are summarised in Table 1. The results of the *Leximancer* analysis are illustrated in the *Leximancer* generated concept maps (Figures 1 and 2) and the table of illustrative vignettes (Table 2).

Initial themes

In the initial manual analysis of the data several themes were particularly dominant (see Table 1). Generally, students were enthusiastic about the use of the system and believed that it should be used more

widely and more effectively by lecturers. They were positive about using online communication as a means for sharing knowledge and information and interacting with staff and other students. Although they were happy to have the flexibility of access to their lecture notes and PowerPoints online, they recognised the potential for using communication and other tools to enhance their learning. Navigation was an area where students were probably most negative. In particular, they felt that site navigation menus needed to be more consistent so that they could find their materials, assessment and tasks more easily. They also pointed out that the system was not used consistently across the courses in their programs and requested a more consistent and high standard of use. For most of these weaker areas, students recognised that issues were probably related to staff knowledge of how to use the system to its potential. Students requested that lecturers have more training on how to use the system more effectively.

Table 1: Themes derived from manual analysis related to lecturers' use of the LMS

Lecturers' usage	Details
Wider use required	Many students suggested that the LMS should be more widely used at the university.
More effective use required	A predominant message was that students felt that lecturers were not using the LMS as effectively as they could be.
Interaction with staff & students	Many students commented positively on the student to student and student to staff interaction that occurred on the websites.
Good communication potential	Many students were very positive about the communication potential of the system for sharing and managing queries, knowledge and information.
Access to lecture notes and PowerPoints	Students were generally happy to have access to lecture notes and PowerPoints but also felt that communication and other tools were very important for their learning.
Flexibility	Many students were happy to have the flexibility of web-enhancements in their courses
Navigation	Many students believed that navigation problems were due to the way the course was set up by the lecturer.
More consistent use of menus	Quite a number of students asked for a more consistent use of menus so that they could find things more easily in different web-enhanced courses.
Lack of consistency across courses	Many students noted a lack of consistency in how the system was being used across courses within their program and requested a consistently high standard of use.
Staff knowledge problematic	A predominant message was that students felt that lecturers did not have the knowledge to use the system to its potential.
More staff training	A predominant message was that students felt that lecturers required more training in how to use the system effectively.

Leximancer analysis

The *Leximancer* map in Figure 1 illustrates the group of concepts that are related to the theme of 'lecturers' (large darker circle), 'LMS' (large paler circle) and 'confusing' (smaller pale circle). The size of the points associated with text inside the 'lecturers' circle indicates the most strongly connected concepts. This was further investigated in Figure 2 by reducing the number of concepts displayed in the concept map and by left-clicking on the 'lecturer' concept to see lines connecting it to other concepts. The right-hand side of Figure 2 shows how the *Leximancer* software displayed the related entities to the concept 'lecturer'. The absolute and relative counts to the right of the concepts demonstrated the extent to which the concepts co-occurred with the concept 'lecturer'. These types of investigations confirmed that comments from students about lecturers were predominantly connected to the overall topic LMS, and to the concepts 'notes', 'students', 'easy', 'access', 'information' and 'discussion'.

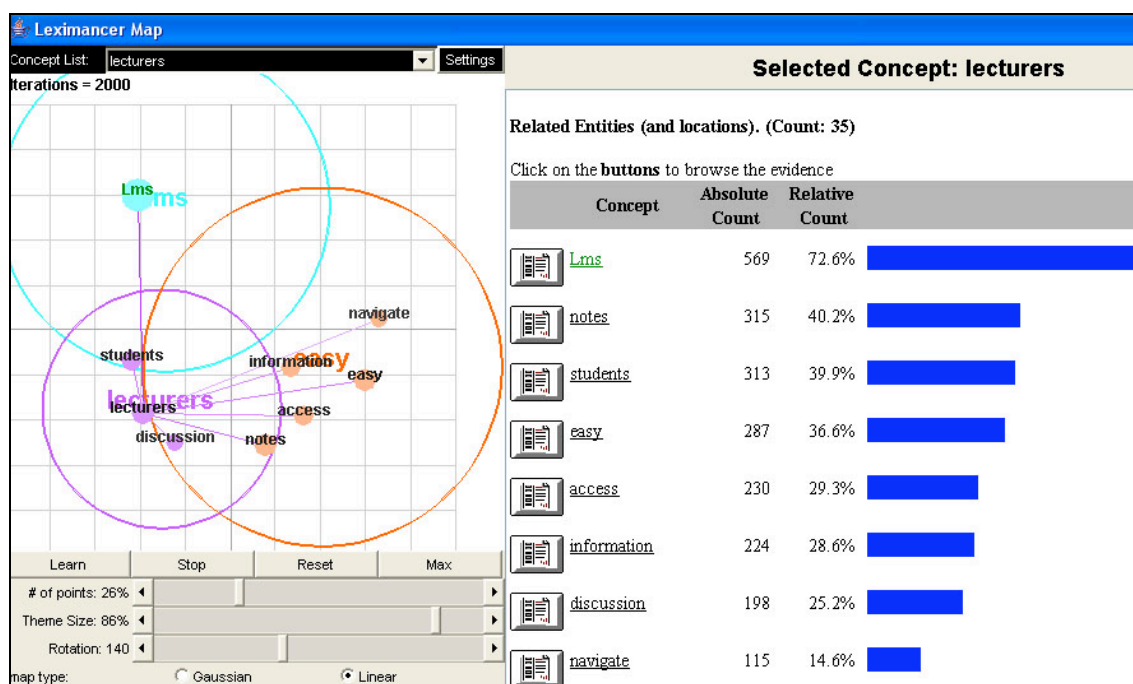


Figure 2: Relationships with concept 'Lecturers'

Using the *Leximancer* tools, it was possible to browse through the textual evidence where the concepts were co-located. In this way, the concepts LMS, 'notes', 'students', 'easy', 'access', 'information' and 'discussion' were further explored in context. A random audit of the evidence related to lecturer use of the LMS revealed student vignettes that were supportive of the types of themes that came through in the initial manual analysis (See Table 2).

Students' remarks were often very insightful and demonstrated that they were aware of the potential of the system for their learning. Many students remarked on positive experiences but were clearly frustrated by less technically competent lecturers who could not use the system well. They also commented on basic elements of instructional design such as consistency of placement of items in the system and of menus and other navigational elements. Students differentiated between problems of design that may be attributed to the lecturer and those that may be inherent to the system.

The flexibility and availability of online lecture notes and PowerPoints were well received but students expected lecturers to use other LMS tools as well. In particular, many students seemed to appreciate the communication potential of the LMS tools for their learning. While some students did comment on discussion boards negatively, most students viewed them favourably. They enjoyed the ease and convenience with which communication could be managed and could occur through discussion board interactions and knowledge sharing with students, tutors and lecturers.

In summary, initial themes were confirmed by the *Leximancer* analysis and were congruent with themes articulated in the aforementioned studies. The issues of use, lack of use, instructional design, communication and interactivity continue to be central to students' concerns.

Challenges and future directions for staff development

With new generations of students using technologies in evermore creative and connected ways, the need for university teaching staff to be able to use an LMS to its potential has become critical. Students' expectations are not unreasonable. They are not expecting their teachers to be as technologically savvy as themselves. They only want consistent quality of learning and teaching, using what they perceive to be, an easy-to-use system. Communities, such as the ascilite community, have been trying to solve the staff development conundrum for many decades. How do we reach those staff who do not engage with the opportunities we create for hands-on training and pedagogical applications of online learning and teaching? How do we enable lecturers to develop good practice approaches to their use of educational technologies?

Table 2: Concepts strongly related to 'lecturers' with vignettes

Concepts (absolute count)	Illustrative vignettes
LMS (569)	<p>LMS is easy to navigate around. I think it would be great if the lecturers used it to its full capacity but they don't, so all it seems useful for is lecture notes</p> <p>As a part time post grad student, working full time, web based programs are preferred for ease of access to information and resources. It also eases communication between classmates and myself, which I appreciate. One problem is that it is less powerful if the lecturers are unaware of the full capacity of LMS, therefore potential is not being maximised</p> <p>The quality of LMS depends highly on the competence of the lecturer. Some lecturers utilise it very well, others struggle</p>
Notes (315)	<p>Discrepancy in the ability to print lecture notes off it after they are put up by lecturer.</p> <p>Sometimes the links for lecture notes don't show up, but I'm guessing that's the lecturer's fault!!!</p> <p>The site is also barely used by any of the (my) subjects that do use it, at most some of the lecture notes and tutorials, but not used for communication from lecturers, course profile not uploaded despite section there for it. no links for recommended reading from lecturers. Essentially the lecturers don't utilise it to justify it in my opinion.</p>
Students (313)	<p>It's very appropriate for courses which require much interaction between students and lecturers as well as students and each other.</p> <p>It is a good platform that facilitates learning and promotes discussion through discussion forums. This enhances the level of student to student and student to academic/lecturer interaction levels.</p> <p>I like the ability to access course notes and also the capacity to have noticeboards where students can communicate with each other and the lecturer</p>
Easy (287)	<p>LMS is easy to use, the only pitfall is the lecturers' inability to use it properly or the fact that they don't use it to its full capabilities (i.e. online forums, discussion board, updated progress percentages etc etc....). It would be much better if these were ALL utilised by academic staff so we could go to one place to see how we're doing or to contact lecturers beside flooding their email accounts!!</p> <p>It also has a discussion board which allows easy consultation with other students and lecturers.</p> <p>I like it because it's easy to access course information e.g. notes etc . Access from anywhere is great. I don't think it is overly useful as a collaborative tool -- it is better simply for information.</p>
Access (230)	<p>It is convenient and fast and easy to access at home.</p> <p>Discussion board allows easy consultation with other students and lecturers Easy to access lecture notes for most subjects all in the one place. .</p>
Information (224)	<p>Has effectively all the information required for weekly classes, tutorials and assessment - it's a one-stop-shop. Non-technophobic lecturers use it a lot for announcements etc, which means you don't get unmanageable numbers of emails</p> <p>It depends on how much the lecturers use it, I like using it for communication and instead of email for stuff everyone needs to know. I like that LMS is simple, easy to use and has all the information I require for my course in one spot.</p>
Discussion (198)	<p>LMS is great for students as it promotes discussion and interaction between students, tutors and lecturers.</p> <p>The discussion boards allow me to talk to my tutor and other students easily and conveniently rather than by conference or e-mail. LMS helps by making me feel less isolated from the university.</p> <p>I like that you can chat to other students in the subject on the discussion board. Can also be useful if tutors use that to answer our questions cause it can be quicker than email and actually be useful for more than one student.</p>
Navigate (115)	<p>It can be difficult to navigate to find the relevant information as some of the menus are confusing in the course sections.</p> <p>Navigational usability is poor, different lecturers use different areas for different stuff i.e. all lecture notes should be under learning material</p> <p>It is a good site to access resources from, but it would be good if there was slightly more uniformity between subjects as navigating between them can be a bit tricky. I guess this depends on how the coordinators/ lecturers for each course set the site up.</p>

We are all acutely aware that time allocation, reward and recognition are major influential factors for university staff considering staff development. Previous research has told us that many lecturers want 'just-in-time' one-on-one help with technology integration, easy access to instructional design principles and examples of how the technology can be used effectively and educationally (Steel, 2004). We have also known for some time that many academics are now resistant to workshops and do not have time to attend sustained staff development courses (eg. Bates, 2000; Boud, 1999; Collis & Moonen, 2001; Laurillard, 2002). Project-based staff development has yielded positive outcomes but is often not sustainable in the long term.

Recognition and reward for staff development has been discussed for decades and there has been some progress in this area in Australia with the establishment of the Carrick Institute for Learning and Teaching. Many universities are now creating teaching and learning showcases in eLearning and Teaching where lecturers can browse for ideas in discipline-specific categories such as Deakin University's 'Contemporary Online Teaching Cases (<http://www.deakin.edu.au/itl/teach-learn/cases/>). Groups like the Teaching, Learning and Technology Group are working on the idea of '5 minute eClips' that generally package a single teaching point into a short 5 minute video that can be viewed through digital spaces such as YouTube (eg. <http://youtube.com/watch?v=0klgLSxGsU>). Perhaps these kinds of ideas comprise part of the solution. Further creative solutions are required along with more research into the impact of various staff development initiatives and the impact of teacher beliefs on engagement and non-engagement in staff development for eLearning and teaching.

In response to the student feedback from the survey a number of strategies are under development. First, a survey of staff is being developed to further:

1. expand on student feedback on how lecturers are using eLearning at the university,
2. investigate staff uptake and usage of Bb and related eLearning tools from an educational perspective,
3. investigate staff beliefs and experiences and their impact on engagement and non-engagement in eLearning staff development,
4. investigate other reasons for participation and non-participation in eLearning related staff development offerings,
5. examine the impact of current staff development and training on teaching practices and learning outcomes,
6. identify future staff development requirements for teaching staff in relation to Bb and eLearning,
7. inform the university about how and why the central online learning system is being used, how it might be better used, where the university needs to allocate further resources, and offer staff development to improve staff comfort and ability with educational technologies for quality educational outcomes.

Additionally, the data from the student survey has been reported upon at university teaching and learning committees to promote discussion and feedback. A student symposium is planned for early 2008 to open further dialogue with the university community on constructive pathways forward. Finally, a reflective and developmental benchmarking project is being planned for 2008 using the ACODE eLearning framework (2007). It will compare and benchmark staff development practices with current practices in the national and international higher education sectors around the use of everyday and mobile technologies in support of the aims of learning and teaching.

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