

# Evaluating online learning experiences at Adelaide University for staff and students in 2001

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***Abstract:** In 2001, Adelaide University commenced a pilot program of online learning as computer assisted learning across the University. Within this research university, the decision had already been taken to utilise Blackboard as the software to deliver online courses as a support, but not replacement, for face-to-face teaching. The piloting of online learning was supported by the establishment of an Online Learning and Teaching Unit, staffed by academic secondments, to provide staff and student support for online learning.*

*In Semester 1, 19 Courses were piloted, and 3 were evaluated in depth, whereas in Semester 2, of the participating 98 courses, 10 were selected for in depth evaluation. The selected undergraduate courses ranged across chemistry, physiology, architecture and landscape architecture, law, agriculture, business management, and humanities with students enrolled from first year to fourth year, from large and small classes.*

*The paper describes the evaluation protocol utilising formative, summative, illuminative and technical quality assurance instruments which revealed the different approaches to online learning adopted across the University by students and staff.*

*They ranged from hostile, grudging acceptance from some more senior students to enthusiastic embracing of new opportunities from students and staff. Issues of familiarity, access and equity, collaborative learning, attendance and learning supplementation compared with replacement of face to face teaching, usage patterns, differential expectation of staff ability to construct and maintain their Blackboard websites, will be explored.*

*The results of the evaluation have directed support for staff and students at Adelaide University for the 2002 major roll-out of online learning. The dedicated Online Learning and Teaching Unit has been subsumed to the larger Learning and Teaching Development Unit. Students all have their personal web learning portal, and all courses have an empty course template constructed for them. Staff and student familiarisation support sessions are planned, and the demand from staff has been substantial.*

**Keywords:** *Summative; Illuminative evaluation*

## Introduction

Against a background of selecting Blackboard for piloting as an enterprise level platform for the introduction of online learning (as computer assisted learning) at Adelaide University in 2001, the Online Learning and Teaching Unit (OLTU) was established, staffed by seconded academic and general staff members. The goal of the Unit was to improve the quality of learning and teaching at Adelaide University, in particular through showing the worth of online education. At this initial stage the Blackboard portal was renamed as MyUni for Adelaide University staff and student usage.

The principal research questions to be answered by OLTU during the 2001 MyUni pilot were:

- Does online learning add value to our students' education at Adelaide University?
- Should we proceed with a centrally funded and managed system for delivering online learning?

An evaluation protocol was developed to support the research questions. It was to run in parallel with evaluation surveys being conducted of the pilot group of staff and students by Information Technology Services (ITS), as a part of their testing of the efficacy of Blackboard. Some overlap was inevitable, but the principal goal of the OLTU was to tease out the question of whether there were educational benefits for students in proceeding with a centrally funded and managed system for delivering online learning. As John Biggs (1999, 24) wrote "It's not what we [teachers, staff developers] do, it's what students do that is the important thing." Consequently, a focus of the evaluation of on-line learning was to distinguish evaluating the contribution of the online environment to *learning* as distinct from software review. Only in-classroom evaluation, with the enrolled cohort, is valuable in ascertaining the role of computer-based resources (including on-line materials) in assisting learning. The review of software alone removes context, the coaching role of the teacher, and the effect of peers, all of which are critical.

## Scope of this paper

The *purpose* of this paper is to describe the learning and teaching experiences within ten of the Semester 2 online learning pilot courses at Adelaide University. The *focus* of the paper is to describe the evaluations conducted in Semester 2, present the results, analyse and discuss the results, and make recommendations about supporting online learning in respect to learning and teaching issues for 2002.

## Evaluation Protocol

Martin Oliver (1997), in expounding "A framework for evaluating the use of educational technology" identifies five possible roles for evaluation: formative, summative, illuminative, integrative and quality assurance. His naming and differentiation are useful in comparing evaluative studies, and in guiding processes and the selection of evaluative "tools".

The research questions directed the evaluations towards an ethnographic approach. This was preferred to the less meaningful propositions of technical evaluation of the courses mounted on Blackboard software (merely quality assurance) or evaluating the efficacy of the Blackboard courses using volunteers, which, whilst possibly revealing *how* the courses are

negotiated, fails to illuminate the learning outcomes, and fails to account for context, including the presence of peers, and the teacher's role in the classroom.

Course	Faculty	Year Level	No enrolled
Physiology 2	Science	2	150
Physiology 3	Science	3	60
Chemistry 1	Science	1	425
Rural Business Planning A	Agriculture	1	58
Modernisms: the avant-garde and mass culture	Humanities	2	44
Design and Environments 2/4	Architecture	2	45
Legal Skills 2	Law	2	220
Corporate Law	Law	2,3,4	280
Business Management for Agricultural Science	Agriculture	3,4	63
Pasture Agronomy	Agriculture	3	35

Table 1. Semester 2 Courses evaluated for Adelaide University online learning pilot

Oliver (2000a) drew upon the work of long standing advocates of educational case study research (Bassegy, 1999), and the value of ethnographic observation to propose *illuminative* evaluation as one of the five possible roles for evaluation of the use of educational technology. *Illuminative evaluation* (as distinct from software *review*) is strengthened by the "depth and flexibility provided by evaluations of software use involving a group of students" which are lacking in so-called software *reviews* (Oliver, 1997).

Illuminative evaluations are primarily ethnographic, as opposed to experimental. They aim to discover the factors and issues that are important to the participants, instead of assessing how well an educational intervention performs on standard measures of assessment (Oliver, 1997, p. 5).

The illuminative methodology involves using observations, interviews with participants (students, instructors, administrators, etc., often theoretically sampled (Strauss, 1987), questionnaires and document analysis to "illuminate" problems, issues, and features through exploratory data analysis (Oliver, 1997, p. 8).

In the evaluation design for the Semester 2 evaluations, formative, and summative evaluations conducted were a part of the ethnographic, or illuminative role of the evaluation. The formative evaluations "aim[ing] to identify problems and resources and suggest appropriate solutions" (Oliver, 1997, p. 5) comprised IT Skills surveys, and secondly all results (formative, summative and illuminative) from the previous cycle(s) of evaluation (Semester 1) *used formatively*. The summative evaluations "often specify[ing] how well as resource is

used, and seek[ing] to investigate a single well-defined question" (Oliver, 1997,p.5) were conducted as student evaluations of teaching (SET) at the conclusion of each course. They provided an opportunity for the teacher and evaluator to summarise the concerns raised during the ethnographic evaluations and directly question students about these concerns both in single well defined questions, and with open ended questions requiring reflective answers. The illuminative evaluations comprised in-depth, structured one hour interviews conducted by OLTU staff with course academic staff, managers and administrators (where appropriate) for each course. Subsequently, as a result of identified areas for further investigation, structured one-hour interviews with self-selected student volunteers from each course were conducted. Teachers were not present whilst students volunteered, nor were they present at interviews, which were held outside of classes. The interviews were transcribed by a professional transcriber, and returned to the teachers for verification with all identification of students removed.

## **Examples of Evaluation Instruments, their administration and results**

### **Formative Evaluation**

IT Skills Surveys were recommended by the evaluation team to pilot teachers to ascertain the readiness for online learning of the students enrolling in courses being delivered with MyUni.

The evaluation instrument <http://www.adelaide.edu.au/oltu/tell/aboe/form.shtml> was adapted from an existing S. A. Police Dept IT skills evaluation instrument with input from the Adelaide University Information Technology Services (ITS), and consulted academics who had previously developed their own "readiness for online learning" survey instruments. It covers a range of questions, some of which are very "training focused" as this instrument was developed to cover all IT Skills assessments for future training needs at Adelaide University, rather than "readiness for online learning" with MyUni.

The resultant IT Skills Survey document was administered by the course teacher, and completed on paper, in the classroom/lecture theatre, and returned to the teacher. The data was analysed and reported on the MS Access database by staff on the Helpdesk.

### **Summative Evaluation**

The database of questions for the Student Evaluations of Teaching (SET) was expanded to include new questions (numbers 3110-3117) designed to elicit responses relevant to student's experiences with online learning. The newly updated database (including questions previously developed largely to capture responses in computer science subjects) was also available online for teachers <http://www.adelaide.edu.au/oltu/tell/aboe/summ.shtml> although the administration of the instrument continued to be paper based. In devising the new questions, it was difficult to separate activities that were potentially enhanced or disabled by the influence of online learning from other activities inherent in learning. Therefore the desirable graduate attributes from the course were tested in 3115 and 3116 - independent learning and knowledge acquisition through the online material - whereas 3110 and 3117 tested graduate generic processes - completing tasks aided by online resources and using a bulletin board- are specifically related to learning in an online environment.

- 3115 Independent learning was helped through the online course experience
- 3116 My knowledge of the subject was enhanced through the online material
- 3111 Completing tasks was aided by the online project resources
- 3117 The bulletin board was useful to my learning

## Results

Faculty	Science	Science	Archit- ecture	Law	Agricultural Science	Engin- eering	Human- ities	Health Science	
Course	Chem 1	Physiolo gy 2 /3	Design and Environm ents 2/4	Corporate Law	Pasture Agronomy	Water Engineering	Democratic Organising Technology	Dental Studies Intro to Computin g Level	
Level	1	2,3	2,4	4	2,3	2	1,2	1	
Responses	201	153	48	238	29	50	31	58	
Class size	425	210	48	280	35	58	85	91	
Question									
Computer access Outside Uni %	<b>Yes</b>	<b>93</b>	<b>89</b>	<b>96</b>	<b>94</b>	<b>86</b>	<b>96</b>	<b>100</b>	<b>74</b>
	<b>No</b>	<b>2</b>	<b>7</b>	<b>4</b>	<b>4</b>	<b>14</b>	<b>2</b>	<b>0</b>	<b>22</b>
	<b>Unsure</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>4</b>
www access outside Uni %	<b>Yes</b>	<b>89</b>	<b>81</b>	<b>51</b>	<b>87</b>	<b>55</b>	<b>94</b>	<b>94</b>	<b>79</b>
	<b>No</b>	<b>7</b>	<b>16</b>	<b>49</b>	<b>9</b>	<b>45</b>	<b>4</b>	<b>3</b>	<b>17</b>
	<b>Unsure</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>4</b>
Friend or family who can help you with computer problems %	<b>Yes</b>	<b>76</b>	<b>75</b>	<b>NA</b>	<b>76</b>	<b>69</b>	<b>72</b>	<b>68</b>	<b>76</b>
	<b>No</b>	<b>14</b>	<b>15</b>	<b>NA</b>	<b>15</b>	<b>14</b>	<b>18</b>	<b>22</b>	<b>15</b>
	<b>Unsure</b>	<b>10</b>	<b>10</b>	<b>NA</b>	<b>9</b>	<b>17</b>	<b>10</b>	<b>10</b>	<b>9</b>
How often are you an email user %	<b>Nil</b>	<b>3</b>	<b>2</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
	<b>Rarely</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>16</b>
	<b>Monthly</b>	<b>3</b>	<b>5</b>	<b>82</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>10</b>
	<b>Weekly</b>	<b>42</b>	<b>47</b>		<b>34</b>	<b>52</b>	<b>54</b>	<b>42</b>	<b>26</b>
	<b>Daily</b>	<b>49</b>	<b>40</b>		<b>58</b>	<b>41</b>	<b>46</b>	<b>48</b>	<b>45</b>
How often are you a web user %	<b>Nil</b>	<b>0</b>		<b>14</b>	<b>1</b>	<b>0</b>		<b>0</b>	<b>0</b>
	<b>Rarely</b>	<b>2</b>	<b>6</b>	<b>86</b>	<b>1</b>	<b>7</b>		<b>3</b>	<b>9</b>
	<b>Monthly</b>	<b>2</b>	<b>7</b>		<b>4</b>	<b>10</b>		<b>10</b>	<b>16</b>
	<b>Weekly</b>	<b>40</b>	<b>50</b>		<b>43</b>	<b>48</b>	<b>60</b>	<b>48</b>	<b>41</b>
	<b>Daily</b>	<b>56</b>	<b>37</b>		<b>51</b>	<b>35</b>	<b>40</b>	<b>39</b>	<b>34</b>
Existing bulletin board user %	<b>Nil</b>	<b>61</b>	<b>64</b>		<b>NA</b>	<b>60</b>	<b>83</b>	<b>42</b>	<b>48</b>
	<b>Rarely</b>	<b>30</b>	<b>32</b>	<b>25</b>		<b>17</b>	<b>44</b>	<b>32</b>	<b>28</b>
	<b>Monthly</b>	<b>2</b>	<b>2</b>	<b>6</b>		<b>0</b>	<b>2</b>	<b>7</b>	<b>5</b>
	<b>Weekly</b>	<b>4</b>	<b>2</b>	<b>6</b>		<b>0</b>	<b>6</b>	<b>13</b>	<b>10</b>
	<b>Daily</b>	<b>3</b>	<b>0</b>	<b>3</b>		<b>0</b>	<b>6</b>	<b>0</b>	<b>4</b>

Table 2. Semester 1 and 2 Courses IT Skills evaluated for Adelaide University online learning

## Results

As SET evaluations are private to the teacher, it is not possible to report on students' evaluations except where teachers have waived their right to privacy. In the courses CAD 1 Code 9091 and Built Environments 1 Code 4168 there was substantially the same cohort of students in Level 1, Bachelor of Design Studies in the School of Architecture, Landscape Architecture and Urban Design. In this SET the vGallery is the Adelaide University virtual Gallery for exhibition and critiquing of student's work (Shannon, Roberts & Woodbury, 2001).

rw10 Course 9091	Course 4168	SET Question
5.0	5.9	1. Course materials were effectively presented on the Website
4.9	5.7	2. Completing tasks was aided by the online resources
5.6	5.2	3. The vGallery was a good tool for submitting work
4.0	4.9	4. Feedback on my work on the vGallery was useful to my learning
5.4	5.6	5. I used the vGallery to learn what other students were doing
4.5	5.2	6. Independent learning was helped through the online course experience
4.8	5.2	7. My knowledge of the subject was enhanced through the online material
3.8	5.3	8. The bulletin board was useful to my learning

Table 3. Comparison of student SET responses showing mean score of students who 'strongly disagree' to 'strongly agree' with the given proposition (Likert scale 1-7).

Note: For course 9091 (CAD1) there were 102 students and 62 responses (60.8%). For course 4168 (BE1) there were 98 students and 73 responses (74.5%)

A different cohort of Physiology 3 students were less certain about the benefits of web-based learning over the traditional text-based learning with which they had already become familiar. We found this pattern repeated throughout the illuminative evaluation focus groups: that students were reluctant to change the way in which they had been learning part way through a three or four year program whereas the commencing students were less critical of the concept of online learning supporting face to face contact. Refer to Table 4.

Course 6304	SET Question
5.0	1. I was given a good introduction to Blackboard at the start of the first Semester.
6.1	2. It was made clear to me early in the semester that all of the relevant course information would be available through Blackboard.
5.6	3. It was useful having all of the course information posted on Blackboard
6.7	4. I understood that I could email lecturers queries about their lectures or the assessment tasks.
5.7	5. I felt comfortable emailing lecturers queries about their lectures or assessment tasks.
4.3	6. It was more convenient to upload assignments on to Blackboard than hand up a hardcopy
5.6	7. I had sufficient access to computers to allow me to study the web-based materials
4.9	8. Having the resources online made completing assessment tasks easier
4.4	9. My confidence in using computers and the Web has increased

Table 4. SET responses mean scores for Physiology 3 Course 6304

Students' responses to open-ended questions in SET evaluations revealed more of their concerns. Physiology 3 students reported issues of convenience, access, receipting, self-evident filing of content and server reliability. Reflective answers illustrative of the themes are reported.

**Electronic Receipting**

1033 1. "Is good that computers are available to students in the 2<sup>nd</sup> yr labs. Don't feel safe that uploaded files have been received – maybe send an email to students to show file is received."

2. "Should get email reply when handing up uploaded assignments via MyUni stating name of title etc. Thus, hopefully the right copy will be handed up – identified through the title, therefore, no problems with wrong ones being handed in, or not knowing if it got through the system."

3. "The only complaint I have is regarding assignments etc. and having to upload rather than give a hardcopy. I never know if my copy has been sent properly etc. and have recently found that my lit review had sections missing that were not missing before it was sent (ie. References etc.), therefore, I lost marks. I would prefer to be able to hand up a hardcopy as well as over the net so it can be double checked if things go amiss."

**Server Reliability**

1033 4. "Re ...MyUni – an issue of web-shut downs or computer problems- my only reservation (can't be helped though!)"

**Equity of access**

1033 "Students who don't have internet at home are disadvantaged – especially when files are due at midnight."

**Cost**

1033 "Lecture notes on computer means too much printing out – expensive."

**Locating Content**

1033 1. "Students weren't shown how to find things – information is hidden in different places."

2. "The only complaint –MyUni is a little confusing. Where info is put i.e. Under their particular headings isn't where you would usually expect to find them."

**Speeding up access**

1033 "I always used MyUni. Why do you have to enter you PIN and password twice to access your email? – seems trivial but..."

**Convenience of managing own learning**

1033 "Blackboard was a good introduction for physiology students, it allowed us to check up info without bothering lecturers all the time. Overall, Blackboard is useful and well designed."

Table 5. SET open-ended responses for Physiology 3 Course 6304

Whilst open-ended responses are valuable, they tend to seek responses to only one single well-defined question. This is where a set of questions developed for focus group/s as a part of illuminative evaluation can tease out the issues around the responses to the single well-defined question in detail without presupposing the issue as happens in SET evaluations.

**Illuminative Evaluation**

The reflective comments of the staff and students (in the ten pilot courses selected for in-depth evaluation) were gleaned from one-hour interviews conducted during the Semester with staff, and during one hour focus groups conducted towards the end of the course with self-selected students. This is *illuminative evaluation*, and, as is suggested by the name, is intended to *illuminate* the learning situation. As qualitative research, it relies on making the research situation visible to the reader, who is able to understand from the perspective of the interviewee the issues which impact on their perception of online learning. The focus groups used structured interview questions to tease out the issues arising from both the structured interviews with staff, formative and SET evaluations (where available) and the principal

research question. The interview questions were pre-distributed to the staff who tended to extensively prepare reflective answers prior to the interview as an aid to memory.

The instruments for staff were specific to the course but had generic features in that the evaluator wished to ascertain whether staff had previous experience of online learning, and how they compared the management of their class after the advent of their MyUni website with the management of their classes previously, and what their perceptions were of the contribution to their teaching, and their students' learning, from online learning.

<p>1033 <b>Teacher Evaluation Questions for</b> Physiology II, Physiology II (Biomedical Science) Human Movement Studies III Physiology Cells, Systems and Communication II Honours Physiology Physiology III (Biomedical Science)</p> <p style="text-align: right;">13<sup>th</sup> June 2001</p> <p>Susan Shannon describes the purpose of the evaluation</p> <ul style="list-style-type: none"><li>• Gathering information from teachers in pilot group about their activities and associated work in establishing their course(s) in Blackboard;</li><li>• The positives, and negatives associated with Blackboard;</li><li>• Gaining insight through teachers' eyes about how learning happened in the Bb courses.</li></ul> <ol style="list-style-type: none"><li>1. not0Introductions and related self-statements about your role in On Line Learning.</li><li>2. not0Did you have previous experience in delivering on-line learning?</li><li>3. not0What did you <i>do</i> to establish your Course(s) on Blackboard?</li><li>4. not0What advice, support or guidance (if any) did you receive about establishing your Course on Bb?</li><li>5. not0From whom?</li><li>6. not0What parts of Bb did you use? Why? At what point?</li><li>7. not0How did you manage your Bb website? What activities did you engage daily, weekly etc? Was this different from managing this course prior to Bb?</li><li>8. not0What are your impressions of how Bb contributed to your teaching?</li><li>9. not0What are your impressions of how Bb contributed to your students' learning?</li><li>10. not0 What changes do you envisage making in the next delivery of your course(s) with Bb?</li><li>11. not0 What additional skills and support would you envisage requiring?</li><li>12. not0Where could improvements in support be made at the local or institutional level?</li></ol>
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Table 6. Sample Instrument for staff interviews from Physiology 2/3

**Focus Group questions Physiology 2/3**

**Sept 2001**

**The purpose of the Focus Group is to understand more about how you learned with MyUni in this course.**

1. (warm up) Which parts of the course do you think you got most out of?
2. (around the circle) What did you each look at online on the MyUni site?
3. How often did you visit the MyUni site? At which places did you access it?
4. What did you have to *do* on-line to complete course requirements?
5. How did you go about gathering and managing the online research material you needed? And the lecture notes and tutorials?
6. What assessment tasks did you/are you doing online?
7. What issues were associated with on-line formative assessments?
8. Did you look at your grade on-line for the assessment tasks? Can you look at them elsewhere?
9. How did you hand in work online? What issues were associated with doing that?
10. Did you use email through MyUni? If yes, tell about that. If no, why not?
11. (3<sup>rd</sup> years) How did you use the online discussion boards?
12. What differences (if any) could you see between communication with staff, and each other, through MyUni, and in years past through email?
13. (round the circle) On a scale of 1 – 10, how confident were you with using MyUni at the beginning of the 1<sup>st</sup> semester? And now 1/2 way through 2<sup>nd</sup> Semester?
14. Any other comments about learning with MyUni? Who ever used the help desk? How else did you get help with MyUni when you needed it? What links should be on the front page of MyUni?
15. Any other comments about how to improve the delivery of your course with MyUni? If you could give one last comment to the University about the introduction of MyUni next year, what would that be?

Table 7. Sample instrument for student focus group in Physiology 2/3

**Results**

The interview tapes were professionally transcribed, maintaining students' identities as confidential, and returned to the teachers interviewed for confirmation. Along with these lengthy transcripts, was a database of 25 responses from individual teachers who completed the same questions online regarding their Semester 2 experiences. Of particular interest was teachers' experiences managing their course online compared with managing it prior to the advent of MyUni and how teachers perceived MyUni contributed, or did not contribute to their teaching, and to their students learning.

The issues for different disciplines varied for teachers and students and within disciplines for students in different year levels. The responses from each discipline area have been arranged in themes and relevant responses summarized from the interviews are included in Appendix 1.

## Technical Quality Assurance

There was a degree of collaboration between the evaluation surveys being conducted of the pilot group of staff and students by Information Technology Services, as a part of their testing of the efficacy of Blackboard, and the technical quality assurance being conducted by the Online Learning and Teaching Unit in order to understand the usage patterns of Blackboard, and the file sizes which were browsed by the pilot group of users. The access patterns logs (which can be automatically generated by Blackboard administrators), depicting total number of accesses per main area (content, assessment, communication and group) revealed that content areas (course information, staff information, course materials and announcements, course assignments and resources) are the main areas visited by students. Similarly, the hour of the day, day of the week, and day of the semester access logs reveal that students visit the web site all hours of the day, week and Semester. These access patterns lend credibility to their self-statements that the *convenience* of web-based learning is of paramount benefit to them.

Course	Faculty	Content	Assessment	Communication	Groups
Physiology 2	Science	yes	yes	yes	yes
Physiology 3	Science	yes	yes	yes	yes
Chemistry 1	Science	yes	yes	yes	no
Rural Business Planning A	Agriculture	yes	no	no	yes
Modernisms: the avant-garde and mass culture	Humanities	yes	yes	yes	yes
Design and Environments 2/4	Architecture	yes	no	yes	yes
Legal Skills 2	Law	yes	no	yes	yes
Corporate Law	Law	yes	no	yes	no
Business Management for Agricultural Science	Agriculture	yes	no	yes	yes
Pasture Agronomy	Agriculture	yes	no	yes	no

Table 8. Course content areas enabled by instructors in pilot group

## Partial Results

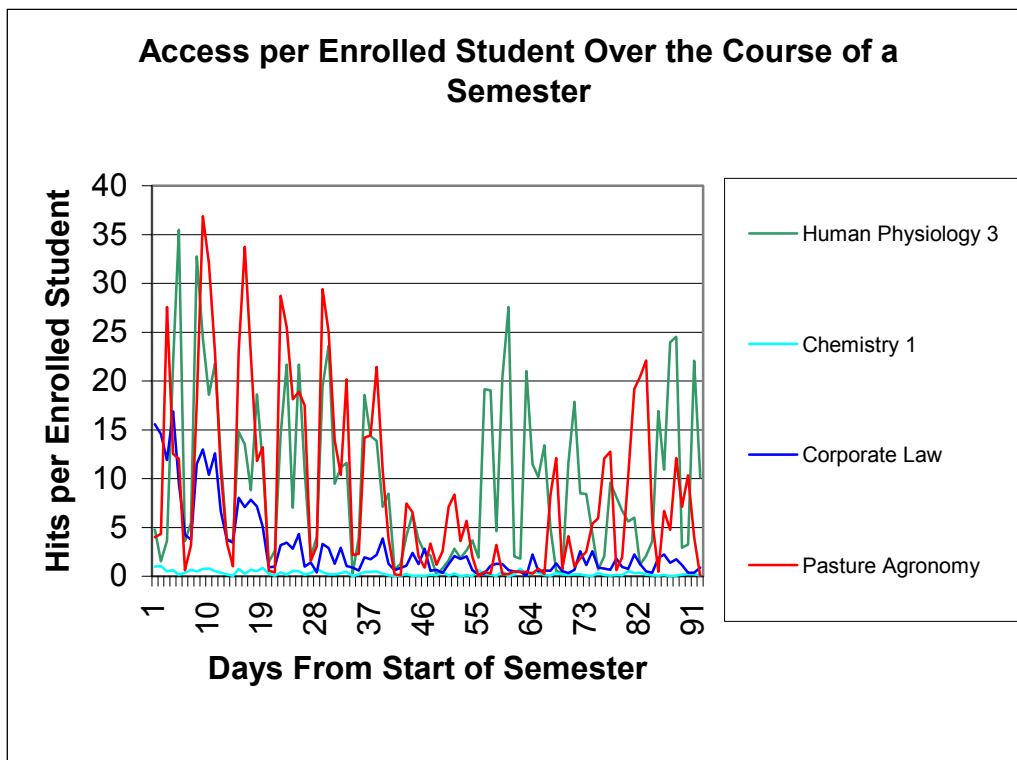


Table 9. A comparison of users' access patterns in indicative pilot courses Human Physiology 3, Chemistry 1, Corporate Law and Pasture Agronomy evaluated by day of Semester

Table 9 reveals that in the Courses Human Physiology 3 and Pasture Agronomy with content only available in MyUni, and strong teacher support for announcements, discussion boards and email, many more hits per enrolled student were received than for courses where information, support and course material was supplied in parallel ways (eg in Corporate Law) and where the material was likely to be visited once and printed off (eg Chemistry 1) and the participatory sections of MyUni were not foregrounded.

Table 10 reveals that where students have a parallel access to course content material, assignment information, and class information in Business Management for Agricultural Science (ie the teacher provided paper handouts), there is no diminution of main content area usage as a percentage of total usage, although the number of hits per student was minimal. However, agriculture is also the cohort reporting low web access outside University, and this result, showing strong likelihood to focus upon main content areas is borne out by the data revealed for Physiology 2 in Table 11.

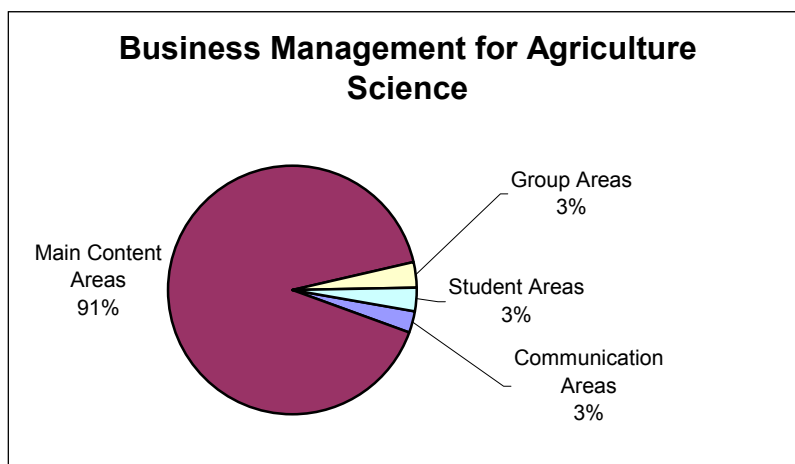
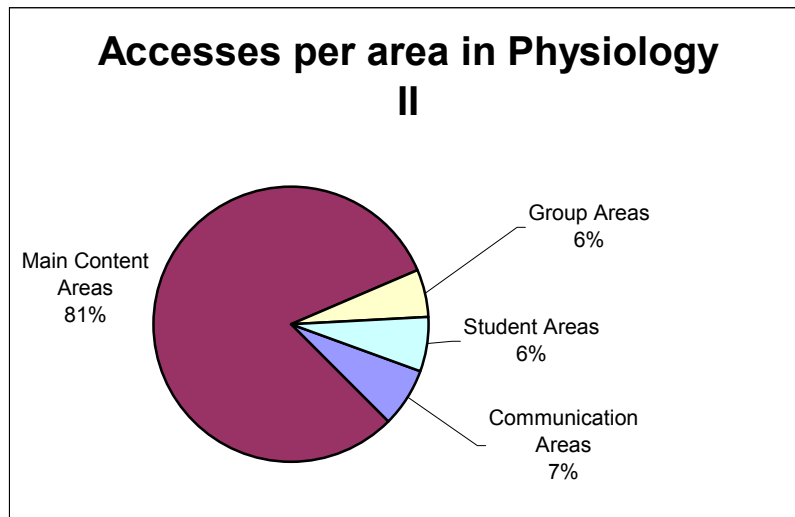


Table 10. Comparison of users' access patterns to course contents areas over Physiology 2, and Business Management for Agricultural Science

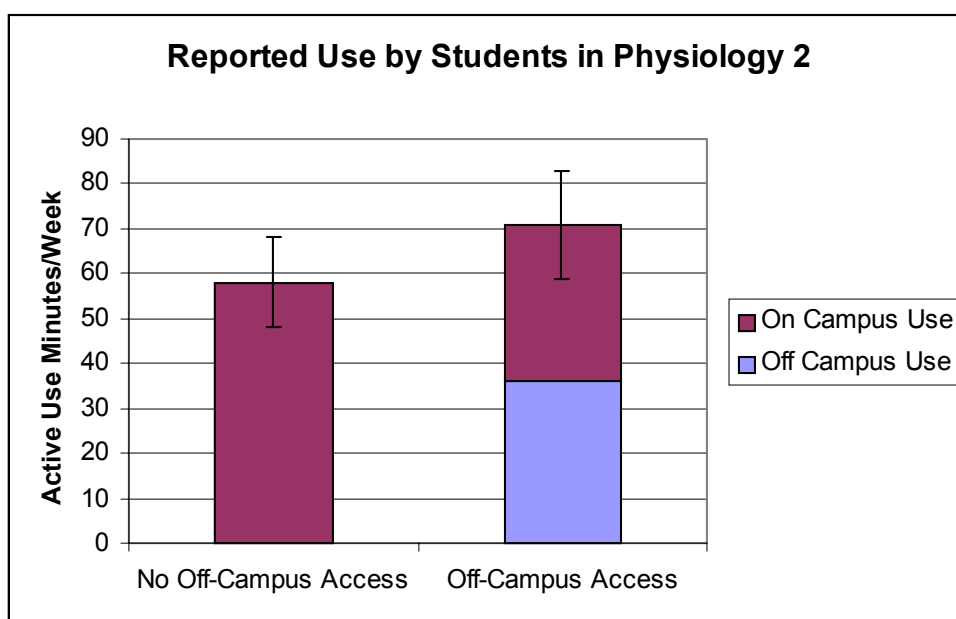


Table 11. Comparison of off campus and on campus use of MyUni.

There was no significant difference in the total time spent actively using the Physiology 2 website as reported by students whether they had off-campus access or not ( $p > .05$ ). Students were then asked to rank the relative importance of content, communication, assessment and administration functions of MyUni. Students with off-campus access were significantly more likely to rank communication and assessment higher than administration and content than those with no off-campus access (chi-squared  $p < .05$ ). When asked to rank possible improvements to the site (more interactive, more things to read, pre-release of lecture notes and replace some face to face activities), students with off-campus access placed a significantly higher priority on interactivity and the replacing face-to-face activities than those without on campus access (chi-squared  $p < .05$ ).

## **Discussion and recommendations**

### **Formative IT Skills survey**

As a result of the lengthy and cumbersome nature of the instrument, and the poor response rate from pilot courses in Semester 2, 2001, the instrument was substantially simplified and re-purposed with the possibility of further adaptation for local area use. The resultant Survey on Student Readiness for Online Learning serves as a (adaptable) template for continuing use in 2002. The benefit of a University-wide template lies principally in gathering Faculty based information for future comparative purposes. The revised and simplified instrument <http://www.adelaide.edu.au/oltu/tell/aboe/form.shtml> is refocused on establishing readiness for online learning, and access to computer, internet, and printing and computer support. Being delivered as a Survey on Blackboard has the added benefit that teachers can immediately access the data to "know your class" without the lengthy process of manual data entry trialed in Semester 2, 2001.

### **SET evaluations**

We would recommend that evaluators continue to include open ended questions, and to develop a set of questions which relate desired graduate attributes to the features of online learning which are not necessarily replicated in traditional face-to face contact in conventionally structured courses - for example independent learning, confidence with web-based learning, improved communication, ubiquity of access. We further recommend that teachers compare their SET results with those respondents in other courses who are also in their cohort to ascertain the element of difference attributable to the teacher, instead of the web. The results from Table 3 illustrate that substantially the same cohort of students will differentiate on the course content, their learning processes and presentation where the delivery context (Blackboard interface) remains constant.

### **Illuminative evaluations**

Where staffing and funds are available to conduct face-to-face interviews and focus groups, high quality data leading to potential "transformation" for teachers and thence students can be gathered and coded. However, the alternative we trialed of online Surveys for teachers, and students, also resulted in high quality data gathering. There are issues of confidentiality being maintained with either qualitative evaluation protocol, face-to-face or online, and the willingness of respondents to criticise variously the teacher, or the administrative structure, is viable only in an environment where anonymity is retained. Therefore illuminative evaluations are only viable where an external evaluator conducts the surveys, interviews and focus groups.

### **Technical Quality Assurance**

The high quality of data which can be revealed concerning course usage enables correlation between the students' self-statements in SET evaluations and interviews, focus groups and informal discussions to be verified. We found that the overwhelming evidence that Course content was the most visited area of the MyUni Semester 2 websites confirmed the principal research question to an extent that was indisputable in the sense that if the course material was *not* useful to students, they would not make use of it to the extent that they did, particularly whilst paper handouts in some courses replicated the web-based course material.

### **Conclusions**

The Adelaide University 2001 MyUni pilot study evaluation developed and refined instruments for online learning evaluation. The evaluations revealed that the perceptions of the participating staff and majority of participating students were that online learning does indeed add value to our students' education, principally through its convenience, ubiquity and improved communications with class and teacher(s). The efficacy of a centrally funded and managed system (Blackboard) for delivering online learning was extensively tested by Information Technology Services, as a part of their testing of the robustness of Blackboard, and was supplemented by the evaluations of students and staff in the summative, and illuminative evaluations. The decision to proceed with a centrally managed and funded system for 2002 has been supported by the evaluations which found that there were educational benefits for delivering online learning through all courses through one web portal per student, and which standardised the way in which students navigated and communicated in every course. Teachers who had previous experience of delivering online courses were critical of the functionality of some parts of Blackboard, and the lack of provision, and "clunkiness" of some tools. However, the benefits to most staff of a self-evident interface, outweighed the criticisms of a probably elite group of confident early adopters who either had strong pre-existing web-authoring skills or were well supported by colleagues.

The results of the evaluation have directed support for staff and students at Adelaide University for the 2002 major roll-out of online learning. The dedicated Online Learning and Teaching Unit has been subsumed to the larger Learning and Teaching Development Unit to reflect the knowledge that "learning" comes before "online learning". Students all have their personal web-learning portal through MyUni, and all courses have an empty course template constructed for their teachers to use by Information Technology Services. Templates supporting good online practice have been developed for teachers, and the Online Helpdesk extended to longer hours of operation. Staff and student familiarisation support sessions are planned, and the demand from staff thus far has been substantial.

### **Acknowledgements**

We acknowledge the willing cooperation of the pilot group of teachers and students, as well as the support from our colleagues in ITS and the Learning and Teaching Development Unit.

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**Susan Shannon:** With a background as a practising architect, university teacher, and assessment researcher, I am currently evaluating an Organisational CUTSD Grant (Adelaide/Deakin) that considers how learning changes, particularly in relation to learning from assessment, when computers are introduced. During this project, I evaluated vGallery, invented to support students, and staff in online assessment. I have been seconded 2001-2002 to Adelaide University Learning and Teaching Development Unit to evaluate the pilot of online learning to all Faculties.

**Dan McHolm:** For the past 8 years I have been working in the Department of Physiology in the area of academic management and technology transfer. I'm currently working on a PhD in the area of the efficacy of online learning in a concept rich domain and how it is impacted by student learning styles. I have been partially seconded to the Adelaide University Learning and Teaching Development Unit to help plan and support the implementation of the University's LMS.

## Appendix 1.

Responses from transcripts. Responses from each discipline area have been arranged in themes and relevant responses summarized.

### *Physiology Staff*

<i>tTheme</i>	<i>Staff interviewed and issues</i> Departmental Director of Learning and Teaching, who was also the coordinator for Physiology 2; Manager of the Physiology Teaching Resource Centre (PTRC).
<i>Prior experience of managing online learning</i>	Staff previous experience of web-based learning and preparing and maintaining a website was very different. The Manager did all the day-to-day course preparation. The co-ordinator did not have a hands-on role with the preparation and mounting of the MyUni course material.
<i>Moving towards a pedagogy of online learning</i>	<ul style="list-style-type: none"> <li>• Blackboard afforded the opportunity to change their web-based Physiology sites from administrative in focus to on-line learning - an opportunity they felt they had not yet fully grasped.</li> <li>• They had adapted content which pre-existed the introduction of Blackboard to mount on Blackboard.</li> <li>• They questioned whether what they are doing mounting courses on MyUni is actually "doing online learning" at all compared with "how a lot of people would see it" ... "really as largely administration".</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>• They believed they were using Blackboard principally for administration and communication.</li> <li>• They saw their websites as "an information warehouse as opposed to any sort of tool to develop understanding at this point".</li> <li>• They believed their websites reflected the already in-place Physiology course structure placed onto the Blackboard website rather than any development the course.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>• Using discussion boards, announcements and email to improve intra-class and staff communication was one of the principal early gains from the online environment.</li> <li>• The principal way in which the teachers believed it contributed to their students' learning was through encouraging the students to approach them more for help.</li> </ul>

### *Physiology students Positive experiences*

<i>tTheme</i>	<i>Students' responses</i>
<i>Convenience</i>	Many reported the benefits of having a complete set of lecture notes and other teaching material accessible at all times of day during the whole week.
<i>Learning support</i>	They valued being able to preview lectures, assignments and practicals before teaching.
<i>Communication</i>	They valued the opportunity to have better access teachers and peers.

**Physiology students** *Less than positive experiences*

<p><i>Access and Equity issues interrupting learning and impacting negatively on learning outcomes</i></p>	<p>Students reported that needing to come into University solely to access online learning, and hand in work online when not having web access at home was time-consuming and frustrating. A direct student quotation is included which summarises the frustration and inequity issues experienced:</p> <p>"I had a personal problem with handing up one of my online assessments. It was on a weekend, and my computer crashed, so I had to go to the local library to use the computer there to hand in my work – but that day, MyUni was not functioning – meaning that access was denied to everyone. I was told that access was granted, or it came online again after 8pm at night – after the library had closed, so I couldn't finish my work and couldn't submit it on time. This would be a problem for those people who do not have access to a home computer or the Internet – it may be a hassle for them. But my main point is, they should not tamper with the website the day before an assessment is due – because students are unable to access their group pages or any other such information that may be vital for completion of assessments".</p>
<p><i>Acknowledgement Receipting</i></p>	<p>Students generally were distrustful of the receipting system for the online Dropbox for hand-ins – most wanting a more tangible receipt.</p>
<p><i>Server Reliability</i></p>	<p>Many mentioned distrusting the server and the "system" and feeling that, even if they had completed an assignment satisfactorily, they still may not be able to submit it satisfactorily online which would penalise them.</p>

**Agriculture staff**

<p><i>tTheme</i></p>	<p><i>Staff interviewed and issues</i></p> <p>The two lecturers, who were course coordinators for the agriculture courses evaluated: Pasture Agronomy, Rural Business Planning A and Business Management for Agricultural Science were interviewed.</p>
<p><i>Prior experience of managing online learning</i></p>	<ul style="list-style-type: none"> <li>• They disclosed their vastly different previous experience of web-based learning and preparing and maintaining a website and the importance of having an on-the-spot mentor when encountering problems. One of the coordinators was extremely familiar with online learning and performed in this mentoring role.</li> <li>• They commented upon the helpful attitude of the HelpDesk staff to preparing and converting documents for their MyUni sites.</li> <li>• The experienced web-author had adapted easily to MyUni from a background in another type of web-based delivery.</li> </ul>
<p><i>Moving towards a pedagogy of online learning</i></p>	<ul style="list-style-type: none"> <li>• They rated Blackboard functions differently depending on their utility: very good for communications, delivery of data and uploading students' web-sites, adequate for lecture materials, but poor for Quizzes and on-line assessments. They believed this rating affected their proposals for any course design involving perceived poor functionality – fitting the learning design to the functionality of the delivery tool design instead of the ideal situation of the flexibility of the tool adjusting to any course design.</li> </ul>

	<ul style="list-style-type: none"> <li>• They commented on the "clunkiness" of some Blackboard functions and the necessity to remake whole sections when wanting only simple changes.</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>• "Quizzes were a major failure, however. Students did not like these as they provided fixed feedback, unlike a classroom situation. The students had no opportunity to ask questions back of the computer. We scrapped this after week 2", and later "Students lose too much personal contact and I felt learned less".</li> <li>• Staff in this discipline area greatly valued face-to-face contact.</li> </ul>
<i>Benefits of improved communication</i>	As the agriculture learning environment had restricted expectation of online access: "I give out much of this [lecture material] in class, and feel that I cannot rely on students downloading and printing material" but a strong focus on campus access to teaching staff by students, there was not a noted impact of online communication.

### ***Agriculture students Positive experiences***

<i>Theme</i>	<i>Students' responses</i>
<i>Communication</i>	Working across three campuses geographically distant from each other, students reported the benefits of ease of communication with lecturers at other campuses, and group members (students) at other campuses.

### ***Agriculture students Less than positive experiences***

<i>Access and Equity issues interrupting learning and impacting negatively on learning outcomes</i>	<ul style="list-style-type: none"> <li>• Many lived away from home or travelled long distances to campuses.</li> <li>• They had the lowest rate of computer ownership, and web access overall, and particularly in first year.</li> <li>• Campus web access not available at all times of day and week.</li> <li>• Printing available only during office hours unless making special arrangements.</li> <li>• No internet access provided in campus college study bedrooms.</li> </ul>
<i>Irrelevance</i>	<ul style="list-style-type: none"> <li>• Neither 1<sup>st</sup> years nor senior students could see the benefits of understanding, nor mastering online learning for their career as they had identified that they were to work in industries where there were no computers at present.</li> <li>• One student disclosed that he had <i>never</i> looked at the MyUni site, preferring to rely on messages passed on by friends.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>• Students were adamant that the benefits of face-to-face contact with both lecturers and students outweighed any perceived benefit of online learning.</li> <li>• One teacher, perhaps picking up on this negative feeling, continued to offer all course material in parallel.</li> </ul>

### ***Humanities Staff***

<i>Theme</i>	<i>Staff interviewed and issues</i>
<i>Prior</i>	<p>The coordinator, and her tutor for the humanities courses evaluated "Modernisms: the avant-garde and mass culture" were the staff interviewed</p> <ul style="list-style-type: none"> <li>• Both coordinator and tutor were experienced and confident web authors</li> </ul>

<i>experience of managing online learning</i>	<p>prior to the introduction of MyUni.</p> <ul style="list-style-type: none"> <li>• This they felt was the key to the sophisticated way in which they used Blackboard</li> </ul>
<i>Moving towards a pedagogy of online learning</i>	<ul style="list-style-type: none"> <li>• The ease of browsing course materials (visual files) and conducting virtual class rooms with practising artists off campus were aided by the functionality of Blackboard.</li> <li>• Some of the activities the staff wished to undertake (students composing their own webpages, browsing visual and aural files, films) were not easily or well supported by the present functionalities.</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>• "Email and gradebook very clunky".</li> <li>• The lack of ability to weight the assessment gradebook, and the Helpdesk was singled out for criticism.</li> <li>• Supporting students to author their own websites required the tutor to have strong pre-existing skills at web authoring as there was no support in the Blackboard environment.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>• Students enthusiasm for learning in this way noted: "Mostly very enthusiastic, particularly with availability of notes &amp; course materials; also mostly adept at use of email".</li> <li>• "Virtual" lectures interspersed with face-to-face lectures to ease teaching load.</li> </ul>

### ***Humanities students Positive experiences***

<i>Convenience</i>	Students greatly valued the opportunity to "catch up" on missed lectures, contact tutor and lecturer by email, receive announcements, and participate in the virtual chat rooms with practising artists.
<i>Learning support</i>	They acknowledged that their benefits from MyUni were largely due to the skills of their teacher and tutor to mount learning materials for them.
<i>Communication</i>	Greatly valued face-to-face tutorials.

### ***Humanities students Less than positive experiences***

<i>Access</i>	Access to the virtual classroom with the practising artists required students to come onto campus, and only about 5 students could effectively communicate synchronously in a Discussion Board before the topic moved on.
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### ***Architecture Staff***

<i>Theme</i>	<i>Staff interviewed and issues</i> The coordinator for "Design and Environments 2/4" was interviewed
<i>Prior experience of managing online learning</i>	<ul style="list-style-type: none"> <li>• She was an experienced and confident web user but this was her first introduction to web authoring.</li> <li>• As a Mac user, she had been on a steep learning curve as the University mainly supported PCs.</li> <li>• She had found the Helpdesk unhelpful, and had learned how to do everything from scratch, including making Powerpoint presentations and mounting them on her MyUni website.</li> </ul>

	<ul style="list-style-type: none"> <li>• She experienced issues with large file sizes, and consequent up-load problems.</li> </ul>
<i>Moving towards a pedagogy of online learning</i>	<ul style="list-style-type: none"> <li>• The advent of Discussion Boards enabled her to interact meaningfully in new ways with students to discuss work in progress.</li> <li>• This had caused her to rewrite her course brief to students.</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>• The opportunities for increased communication had caused her to rewrite her course's architectural brief for students.</li> <li>• "MyUni exposes students to a new system of communication and course delivery, that encourages them to engage with multi media", which is a highly valued professional attribute.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>• "There was effective and transparent communication between staff and students."</li> <li>• Communication between students and her was so enhanced she felt she had to come in to University 7 days a week as she had no web access at home for Discussion Boards and emails.</li> <li>• She did not have this enhanced expectation of her tutors.</li> </ul>

***Architecture students Positive experiences***

<i>tConvenience</i>	With an intense multi-media focus the ease of access from home was praised
<i>Learning support</i>	Group work was a major component of their learning and the collaborations possible through the Group Pages and Discussion Boards were highly valued, as was file sharing
<i>Communication</i>	Inter-group and intra-group communication, communication with the coordinator, and file sharing valued.

***Architecture students Less than positive experiences***

<i>tAccess and Equity issues interrupting learning and impacting negatively on learning outcomes</i>	<ul style="list-style-type: none"> <li>• Cost issues were paramount if no access to printer at home</li> </ul>
<i>Server Reliability</i>	In a course where the communications functions are paramount, and the hand-ins are to vGallery (an Adelaide University authored plug-in which facilitates display of any browsed file type on MyUni) students expressed concerns about the robustness of the 'system'.

### **Chemistry Staff**

<i>tTheme</i>	<i>Staff interviewed and issues</i> The two joint coordinators and lecturers in Chemistry 1 were interviewed.
<i>Prior experience of managing online learning</i>	Both were experienced with online course content development and delivery including online assessment and incorporating graphic and interactive material.
<i>Moving towards a pedagogy of online learning</i>	<ul style="list-style-type: none"> <li>• "[MyUni] allowed us to build a course structure and communicate where we're going and why".</li> <li>• Abandoned concern about non-attendance at Lectures: "They don't actually need me to do learning".</li> <li>• Focused on tutorial and Lab attendance as important to students' learning outcomes.</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>• Found MyUni easier to maintain than previous formats of web delivery.</li> <li>• Rewrote course to minimise "burrowing" and restricted it to three layers of folders and files.</li> <li>• Prepared all their lecture notes and course handouts for the web on pdf for printing.</li> <li>• In previously well developed websites they had developed and tested TestPilot and were not able to immediately adapt material held in Test Pilot to Blackboard Quizzes and Surveys.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>• Tried discussion boards but, as not assessment bearing, they were not taken up by students.</li> </ul>

### **Chemistry students Positive experiences**

<i>tConvenience</i>	Valued the presentation of lecture material online allowing them to "catch up" missed learning sessions.
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### **Chemistry students Less than positive experiences**

<i>tAccess and Equity issues interrupting learning and impacting negatively on learning outcomes</i>	Were critical of the stringent nature of online assessment protocols. If they looked at an online quiz and did not carefully open it this counted as an attempt at the quiz.
<i>Course availability</i>	Lack of links to a textbook particularly worried some students as they felt that if they did not understand how concepts were presented on MyUni they had no other linked course material for an alternate explanation.

### **Law Staff**

<i>tTheme</i>	<i>Staff interviewed and issues</i> The administrator of many Law course websites was interviewed. In Law, most staff do not add material to their own websites, relying on one academic staff member, whose job is partly to support online learning, to
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	prepare their sites.
<i>Prior experience of managing online learning</i>	Very experienced with developing and supporting online courses and materials.
<i>Moving towards a pedagogy of online learning</i>	<ul style="list-style-type: none"> <li>Accepted that students were resistant to change, and particularly change with financial implications for them "I think students did not use it [MyUni] effectively at first but eventually learned how useful it was".</li> <li>Believed that the culture of accepting online learning would mature as the first year cohort moved through the school, expecting and accepting online learning and web-based resources, and the inherent cost implications associated with printing from the web</li> </ul>
<i>Adaptation of existing courses for online learning, and what did not adapt well online</i>	<ul style="list-style-type: none"> <li>She greatly valued the standardisation between MyUni preparation protocols across all courses;</li> <li>She simply differentiated with different banner design.</li> <li>Relied heavily on linking to external sites for course material;</li> <li>Spent a lot of time preparing and organising document scanning, in pdf format for mounting on Blackboard sites.</li> </ul>
<i>Communication</i>	<ul style="list-style-type: none"> <li>"I think it's made everything a lot more accessible and a lot more flexible."... "I think one of its strengths if you've got a participatory thing going is that the quiet students will participate. And also that students cannot hide anymore."</li> </ul>

#### ***Law students Positive experiences***

<i>tTheme</i>	<i>Students' responses</i>
<i>Convenience</i>	They admitted a level of convenience regarding ubiquitous access but this was restricted to notices and announcements rather than document analysis and review which they found universally problematic.
<i>Learning support</i>	The Law School responded by providing printed documents for purchase.

#### ***Law students Less than positive experiences***

<i>Access and Equity issues interrupting learning and impacting negatively on learning outcomes</i>	<ul style="list-style-type: none"> <li>Equity implications not only for computers, but for printing and printing costs.</li> <li>Restrictions on managing their financial resources with wasteful pdf file printing, and incomplete scanned documents annoying (eg last word missing off every line).</li> </ul>
<i>Learning Styles</i>	<ul style="list-style-type: none"> <li>Some objected to the inability to compose their own documents to support their learning from pdf files</li> <li>Critical of reading vast documents from a tiny pdf window on Blackboard.</li> </ul>
<i>Familiarity</i>	Concern expressed about the need to change from a previous system they saw as working well