

Students' perspective of online learning

Jo Coldwell and Jason Wells
*School of Information Technology,
Deakin University*

Abstract: When a student commences a course of study that includes an online component the initial feedback academics receive can reflect their fear of the online concept, their bias against the use of technology, as well as difficulties they may have encountered with using the supporting technologies rather than with online learning per se. In second semester 2002, an evaluation of an online unit in the B. Computing was conducted at the end of the semester to gain a better understanding of students' perceptions of online learning as well as the effectiveness of the technologies that support these activities. We report some preliminary results from the evaluation. Initial indications are that poor first impressions are reflected in students' perceptions of the overall online learning experience. We highlight some areas, normally considered outside the immediate domain of eLearning, that must be attended to in order to minimise the potential negative impact on students, maximise the benefits of learning online and improve the learning experience for students.

Key words: eLearning, distance education, online learning tools, online technologies.

1. INTRODUCTION

Considerable attention is being given to eLearning as many tertiary institutions are taking up the challenge of using information and communication technologies to support teaching and learning, allowing more flexible modes of delivery and potentially reaching a wider audience. Deakin University is one such institution. It is a dual-mode university that has used online communication to present teaching materials and to support on and off campus students since 1981. It currently has 43% of its students studying off campus and a further 12% studying in mixed mode (Calvert, 2001). Deakin University is committed to distance education, encouraging the '... effective use of information and communication technologies to

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sustain and enhance teaching and learning' (TLMP, 2000). It is currently developing a virtual campus to support distance students as well as various online activities. A very recent innovation was the adoption of an institution-wide learning management system to support teaching and learning. All units offered by Deakin University are expected to have a basic online presence by semester 1, 2005.

As Harris (1999) points out, quality eLearning '... takes more than creating good content, it takes a commitment to providing a complete learning environment.' (p.139) He suggests a three-layer model for such an environment, which includes a content layer, an interface layer and an infrastructure layer. The content layer is 'the material that the instructor creates ... to create a learning situation.' (p.141). The interface layer 'delivers the content' (ibid) and, these days, is accommodated within the delivery software, such as email, web browsers, learning management systems and so on. The infrastructure layer 'supports the interface' (ibid) and includes the hardware, software, network connections and Internet services. Harris further indicates that 'the infrastructure should play an invisible support role ... [but] often makes itself known in frustrating ways and can contribute to a poor learning experience.' (ibid p.142) Brewer et al (2001) support Harris' view of eLearning, suggesting that:

'Ideally, technology plays a transparent supporting role in the learning process ... appropriate integration of learning technologies casts technology in the background ... gratuitous and/or awkwardly or inappropriately employed learning technologies can actually juxtapose the role and importance of technology allowing it to compete with the learning process. Left unchecked, such competition diverts instructors' and learners' attention.' (p.39)

This paper examines the potential impact the infrastructure layer can have on the learning experience. We examine issues raised by students that have the potential to result in a poor learning experience and suggest ways to improve their learning experience, particularly during the early weeks of semester.

2. THE ONLINE UNITS

The unit SCC306, Computers and Society and Professional Ethics, is the first unit within the School of Information Technology to be run fully online. Study guides, readings and other content are delivered online. Class announcements, staff-student, student-staff and student-student communications, as well as general chat, are facilitated online. Assignments are submit-

ted electronically, marks and feedback are delivered to the students online. Students work collaboratively in small groups on some assignments as well as undertaking tutorials online, utilising asynchronous discussion forums and sharing of electronic documents. Various technologies are used to support this unit including email, to support one-to-one communications and announcements, WebCT to support the content delivery components, and FirstClass to support the online discussion and collaboration components.

A postgraduate unit, SCC637, is run in parallel to SCC306. The mode of delivery and content is identical to SCC306. The assessment is similar, but is targeted at the postgraduate level.

The unit SCC306 was initially offered online to off campus students only, with on campus students receiving a traditional face-to-face presentation. Originally, the online component was designed to support online tutorials only, using discussion forums. The unit has been developed over a period of six years, to include on campus students across campuses as well. SCC637 has been offered online for the last two years. The various learning components have been moved incrementally from face-to-face and paper-based presentation, to the current state of being fully online. The tools being used to support the online activities have changed year by year, as new and more sophisticated options became available. The rationale behind many of the early instructional design decisions are detailed in Coldwell (2000).

However, despite the increased utility of the interface and infrastructure layers, as well as the authors' ever increasing experience in designing and delivering online content, there remains many issues that must be addressed to ensure the experience of online learning does not degrade or impede the students ability to achieve the desired outcomes.

3. STUDENTS

In semester 2, 2002 a total of 377 students completed the units SCC306 (335 students) and SCC637 (42 students). Table 1 shows the distribution of students by campus and by mode of enrolment.

Table 1: Distribution of students by campus and mode

	<i>On-campus</i>		<i>Off-campus</i>		<i>Total</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<i>Geelong</i>	87	35.2	73	56.2	160	42.4
<i>Melbourne</i>	160	64.8	0	0	160	42.4
<i>Partner Institutions</i>	0	0	57	43.8	57	15.2
<i>Total</i>	247	100	130	100	377	100

Students at partner institutions are enrolled at Deakin as off campus students. However, they receive support from the partner institution in the form of administrative, tutorial and infrastructure support, as well as receiving the normal off-campus support through Deakin. Currently, these institutions are located in Sydney, Hong Kong and Singapore.

Although over 65% of students are enrolled in on campus mode, only those at the Geelong campus (35% of all students) have physical access to the unit chair and unit coordinator since these academics are based in Geelong. The on-campus students at the Melbourne campus have, in effect, the same access to staff as off campus students. However, all students were encouraged to communicate with academic staff and tutors via the online environments rather than face-to-face.

4. THE SURVEY

An online evaluation of these units was conducted as part of the regular quality assurance procedures within the School and University. The survey consisted of 50 questions. There was a mix of questions designed to examine the students' experience and perceptions of:

- unit content and delivery (the content layer);
- the online methods used to deliver the content (within the interface layer);
- the online methods to conduct online tutorials (also in the interface layer);
- accessibility of the learning environment (the infrastructure layer).

The survey was anonymous and delivered online using web-based forms. A variety of question types were used. These included rating, option and short answer questions. Not all questions required a response. The survey was released via WebCT in the 11th week of the 13 week semester and was available for 5 weeks until the completion of the examination for the units. Students were encouraged to complete the survey via reminder emails sent on 3 occasions during that period. No incentives were offered to complete the survey.

5. RESULTS AND DISCUSSION

A total of 137 students completed the survey, a response rate of over 36%. Table 2 shows the number of respondents by campus and mode. The percentages given in the table relate to the proportion of the whole class that responded in each category. Of the 137 respondents, 25 (18.2%) were post-

graduate students enrolled in SCC637 and 112 (81.8%) were undergraduate students enrolled in SCC306.

Table 2: Distribution of respondents by campus and mode

	<i>On-campus</i>		<i>Off-campus</i>		<i>Total</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<i>Geelong</i>	40	46	31	42.5	71	44.4
<i>Melbourne</i>	50	31.2	0	0	50	31.2
<i>Partner Institution</i>	0	0	16	28.1	16	28.1
<i>Total</i>	90	36.4	47	36.2	137	36.3

Early in the semester lecturing staff received many emails and phone calls reporting dissatisfaction with having to complete the unit online as well as problems accessing and using the FirstClass environment. In a 20 day period from the beginning of semester, unit staff received almost 350 email messages, over 200 relating to access problems to FirstClass, 80 to login and password problems, and over 60 relating to permissions, software installation and other software related problems. Initial perceptions of staff were that dissatisfaction and problems were being experienced by a majority of students. It was difficult to identify whether the anxiety amongst the students was attributed to their resentment of having to complete the studies online, a fear and unfamiliarity with the environments being used, or simply a case of a minority group being very vocal. The unit evaluation identified that 70% of the students were studying online for the first time and were not familiar with FirstClass. A similar number reported having problems with FirstClass but did not feel they needed more training. This seems to confirm that the students did in fact experience a level of anxiety attributed to using new software and learning online for the first time, yet ability and confidence with online environments was not perceived as an issue. A summary of the results is shown in table 3.

Table 3: Respondents' background and online experience.

	<i>Yes</i>		<i>No</i>		<i>Unsure</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<i>Is this the first time you have used FirstClass?</i>	91	66.4	46	33.6	**	**
<i>Is this the first time you have used WebCT?</i>	15	10.9	122	89.1	**	**
<i>Is this the first time you have studied completely online?</i>	96	70.1	41	29.9	**	**
<i>Did you have problems using FirstClass?</i>	94	68.6	43	31.4	**	**
<i>Do you feel you needed training in using online software?</i>	28	20.4	99	72.3	10	7.3

Respondents were then asked to indicate which software tools they found difficult to use and which they found useful as far as supporting their learning in the units. Again students identified FirstClass, the learning environment most students were unfamiliar with, as being difficult to use despite finding it useful. This indicates that the functionality provided by FirstClass was not the issue, but unfamiliarity with the environment initially was a problem for the students. The results are shown in table 4.

Table 4: Respondents' view of difficulty and utility of software tools

	<i>Email</i>		<i>FirstClass</i>		<i>WebCT</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<i>Which online learning software did you find difficult to use?</i>	7	5.1	61	44.5	6	4.4
<i>Which online learning software did you find useful?</i>	73	53.3	61	44.5	108	78.8

In an effort to identify and quantify the types of problems that students encountered with the infrastructure and support, respondents were asked to identify the problems (if any) they experienced when using FirstClass. The results are shown in table 5 and are broken down by campus and mode. The number in brackets is the total number of respondents in that category.

Table 5: Problems encountered with FirstClass

	<i>Geelong On (40)</i>		<i>Melbourne On (50)</i>		<i>Partner Off (16)</i>		<i>Geelong Off (31)</i>		<i>Total (137)</i>	
	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>	<i>no.</i>	<i>%</i>
<i>Login/password</i>	13	32.5	17	34	4	25	11	35.5	45	32.8
<i>Access</i>	22	55	25	50	5	31.2	12	38.7	64	46.7
<i>Software installation</i>	0	0	4	8	2	12.5	2	6.5	8	5.8
<i>Connection/net work</i>	19	47.5	31	62	9	56.2	12	38.7	71	51.8
<i>None</i>	7	17.5	9	18	5	31.2	10	32.2	31	22.6

A clear problem existed for students gaining access to the FirstClass environment, attributable to one or more of login, access or connection problems. FirstClass requires students to have a University allocated login and password. WebCT however was administered by the School. Different login and passwords were used for both. It took at least a week for new students' enrolments to be processed and for University login and passwords to be issued. A major, but unforeseen problem existed with the access permission list for the units in FirstClass, which was not resolved until the

second week of semester. This affected many students, particularly those that enrolled late (which often occurs when students come from overseas).

Harris' (1999) assertion that the infrastructure should be invisible but often is not, contributing to a poor learning experience, seems very apt as demonstrated by the results described here. The difficulties encountered with FirstClass, as detailed in table 5, are clearly not related to difficulties with unit content or activities, but with access to the infrastructure. The fact that a large proportion of respondents who encountered difficulties with FirstClass also did not rate it as usable, would suggest that first impressions are all important and do lead to a poor learning experience.

WebCT proved to be the most popular online learning tool amongst the three used. This can be attributed, at least in part, to the familiarity gained with the tool previously, as all units offered by the School have a WebCT presence. FirstClass was the least popular tool with 68.6% of respondents reporting problems using it, 44.5% indicating they found it difficult to use, and 55.5% perceiving it as not very useful in supporting their online learning. This would suggest that it is not only infrastructure problems that require more attention but perhaps students would find it beneficial to receive training in using online software. This is not substantiated by the results however, as over 72% of respondents felt that training was unnecessary and a further 7% were not sure. This may however be attributed to hindsight as the students had completed at least 11 weeks of online study before responding to the survey, therefore they may now feel they did not need training. If the survey had been conducted early in the semester results may have reflected a different story. For this reason it is felt that appropriate training may well have alleviated some of the problems that the majority of respondents encountered when using the software.

6. CONCLUSIONS

There are two main outcomes from this analysis:

1. familiarity with the software tool encourages positive reactions to its use;
2. problems encountered with the software tool early in the semester colours students perceptions of its usability throughout the rest of the semester.

Neither of these outcomes can be greatly influenced during semester within a unit using the tools, but greater attention should be paid to the infrastructure that supports the tools, the hidden layer, as part of the preparations to deliver a unit online. As highlighted in this study, it is foolish to assume the infrastructure, and those that support it, require less attention than the content. But many of these problems relate to policies and

procedures under the control of non-teaching divisions of a University. It is therefore crucial that all layers, particularly those that support content and interface layers, are included in the planning and implementation of any online learning.

Experience with a new learning tool needs to be gained before the online learning encounter. This suggests that students need to use the software before the start of semester in some capacity or allowances are made within the unit structure to provide them with time to become familiar themselves with the learning tools without pressure. This alone may not be sufficient as other concerns such as students' reliance on external ISP's, language problems and general bias that some have against online learning should all be realised and taken into consideration. It is not simply a matter of providing good content. The impact of external factors on students' eLearning experience outside the control of the University is the focus of a future study.

It would be reasonable to expect students enrolled in computing programmes (as is the case here) to be able to cope with the rigours of dealing with information technology. As mentioned early, the University has indicated that ALL units will have an online presence within the next few years. But the majority of University students do not have the same level of information technology literacy skills as computing students. Thus it would be expedient for the University to ensure that all students are adequately prepared for eLearning and that all areas of the University are adequately prepared to support them. This entails providing students with the means of gaining the necessary skills, ensuring that University processes and procedures do not impede the eLearning activities, as well delivering high quality programmes online.

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