INCORPORATING NEW TECHNOLOGY INTO THE DELIVERY OF PROPERTY EDUCATION

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ABSTRACT

Property education has changed substantially in Australia in recent years. Whilst there has been an increase in the number of courses being offered in property education, the profile of a typical student has also changed. Property students are under increasing pressure to balance study and work due to the higher cost of living and the associated cost of education. This in turn has placed pressure on the education system to deliver property in a manner which meets the needs of the industry and the students. At the same time, there has been a marked increase in the use of technology in the business and corporate world which has resulted in increased efficiencies.

This paper critiques the potential for a property education course to embrace new technology rather than 100% face-to-face teaching and only paper-based assignments. The focus is placed on the delivery of material and the interaction between the students, the lecturing staff and the wider community. Using the new Deakin property course as a case study approach, the emphasis is placed on pushing the boundaries of the conventional property education process, including the delivery of property lectures, assignment submission and assessment, as well as the overall communication process. The findings conclude that by embracing technology in a property course, there can be a 'win-win' scenario for the students, the staff and the industry stakeholders. Whilst different property courses embrace varying levels of technology, it seems inevitable that we must continue to evolve the delivery of property education in order to become efficient and effective over the long-term.

Keywords: Technology, property education, generation Y, course material, flexible delivery

INTRODUCTION

The internet with associated open access capabilities coupled with knowledge transfer and the use of information technology or IT in teaching has expanded greatly in recent times (Russell, Bebell, Cowan & Corbelli 2003). A perusal of educational websites confirms there appears to be more and more university courses and individual subjects supported through web based software such as 'Blackboard' where at Deakin University the student software program is known as 'DSO' or Deakin Studies Online. DSO allows

all enrolled students to access course and subject information remotely at any time at their convenience. Most Australian universities have similar systems and software to support student learning and to develop knowledge and understanding in the discipline are studied. The software is now perceived as an essential part of a student's university experience. The degree to which the software is used within the teaching of a subject or a course varies according to the individual staff members' knowledge of and interest in the application of IT in learning.

A further development of the Blackboard IT software has been e-Live (also referred to as 'Elive') or Horizon-live software (Elluminate 2008). This software allows lecturers to deliver asynchronous lectures to students who are logged onto computers. Therefore, the lecturer is not restricted to face-to-face lecturing only and a range of other teaching and learning experiences now have become possible. For example, in a property and real estate course, there are often logistical issues with taking large classes in site visits or perhaps getting practitioners and professionals to attend remote campus locations. Whilst most lecturers value site visits highly as a learning experience, the issues with site visits relate to the provision of adequate site safety vests and footwear as well as appropriate insurance and with large numbers are difficult to organise. Provided the location has a reasonable fast and reliable internet access, eLive allows the lecturer to deliver a lecture with a guest speaker from the guest speaker's office. The use of web-cams allows a lecturer to provide a live feed from a site visit to students logged on in other locations. In summary, eLive would appear to offer a range of positive possibilities in terms of teaching and learning although this is only the theory and is yet untested.

This paper is important because to-date there has been limited research into the students' expectations and satisfaction with a new age (e.g. delivery over the internet via eLive) mode of teaching and learning. For example *what is the student experience of new educational delivery methods such as e-Live? What are the advantages and disadvantages to the students?* There is a general perception that the current generation is computer literate and prefers IT-based study methods. *Is this true*? *Can IT (internet technology) replace the face to face experience? Is a mix of face to face and e-Live lecturing a preferred option?* This research seeks to provide the initial feedback to these questions.

This paper reviews the literature with regards to the integration of IT in teaching, its advantages and disadvantages and explains how teaching practice has evolved to incorporate IT over time. The research methodology is explained and the results of a survey of the first cohort of property and real estate students' use and perceptions of DSO and e-Live is presented and analysed. The paper concludes with the lessons learned to-date and proposals for further research in the field.

THE STUDENT EXPERIENCE

According to George and Cowan (1999), student feedback is essential to enable lecturers to understand whether attempts to improve learning and educational experience lead to improvement. Current Australian practice uses end of module questionnaires to feedback levels of satisfaction and this is consistent with contemporary practices internationally (Kahn et al. 2003). There are inherent weaknesses in this approach, namely that it seldom leads to a change for that particular cohort of students; secondly it relies on uncorroborated opinion, and may derive from superficial feedback from a minority of students with the remainder suffering from questionnaire fatigue (Gibbs 1982). The same study noted the use of questionnaire feedback can provide an uninformative view of what is occurring. The data may not be especially relevant to a particular module, a particular weakness identified by Heywood (2000). Furthermore, McDowell (1991) noted that student feedback may be seen as a 'form filling' exercise without direct student benefit and merely a means of complying with university quality mechanisms and procedures.

Although the benefits of feedback studies are well documented, there are a number of issues to consider to ensure appropriate information is generated (Gibbs 1982). It is important to obtain the feedback in a way that enables students to voice their opinions, in a well considered way so that extreme views do not dominate (Hounsell et al. 1997). The students need to be encouraged to provide reflective opinions. The views need to be obtained in an atmosphere that avoids a blame culture emerging, that the feedback is constructive as well as negative. In the course of undertaking this research, best practice guidelines were adopted as outlined by Hounsell et al. (1997).

An important aspect of this research project was that student feedback was focused on the students' learning experience (McDowell 1991) and how it might be improved, therefore enabling a 'whole new perspective' to be taken on the process. As a result, the process becomes positive and enabling. An advantage is that the student experience can be broadened with an emphasis on understanding how the students perceive and value different aspects of the course - in this case, the focus was placed on the use and application of DSO and Elive technology with regards to delivery of the property and real estate course at Deakin University. A considerable body of research in higher education posits how useful student feedback can be (Marton, Hounsell, and Entwhistle 1984; McDowell 1991; Gibbs 1982). Even though many lecturers concentrate on the content of the lecture material, with reference to feedback there is much to be learned from students about how they approach tasks, their intentions, problems, motivations, and understandings.

Clearly, not all student issues can be accommodated in every study and this may be due to outside factors, such as professional body requirement (i.e. accreditation conditions), physical resources of the university, human resources of the faculty and so on. However

the important aspect is that the educational process implemented is aware of student perceptions, their needs and the barriers to learning. Their views need to be fully considered and evaluated as a whole before appropriate action is taken e.g. a new lecture format. There is clear evidence from previous studies that student feedback does lead to improved performance (McDowell 1991), although notably not always to that particular cohort. This study tries to address that issue by undertaking the feedback at the mid-point and implementing some of the findings in the remainder of the semester.

TECHNOLOGY AND LEARNING

Computer based learning is known under a plethora of names such as e-learning, computer-based learning (CBL), computer assisted learning (CAL), computer managed learning (CML), on-line learning, and Blackboard or, at Deakin 'Deakin Studies Online' or DSO. Each technology is different and used by tutors to achieve varying outcomes. This research paper is concerned with the use of the software programme called eLive (Elluminate 2008) with the software programme DSO running on a 'Blackboard' platform (Blackboard 2008).

What use are computers, and what benefits do learners derive from their usage? According to Cuthell (2002) and Barker et al. (1985), computers used to augment learning are 'powerful tools' and can make 'good teachers'. Thus the educational case for usage appears to be strong.

A perceived benefit for students to use computer technology is that the quality of learning is enhanced and the efficiency of instruction is improved (Barker et al. 1985). Some of the benefits of IT in learning are: augmenting conventional teaching methods, accelerating the learning process, experimenting with course development, providing remedial instruction, providing individualised instruction, providing enrichment materials, achieving consistently higher teaching standards, and providing on demand instruction (Barker et al. 1985; Joliffe 2001; Cuthell 2002). The Blackboard programme can be used in all of these ways (Blackboard 2008) via DSO, where the application of eLive allows lecturers to deliver asynchronous lectures to the class via the internet (Elluminate 2008). Within the PRE course at Deakin University, both DSO and eLive have been used in some but not all of the ways identified above. Another factor to consider is that students now enter tertiary education with educational experience of computer assisted learning from primary and secondary schools. These students are used to using IT in learning and also have certain levels of expectation about CAL and the quality of materials (Barker et al. 1985).

Educationally, the real potential of the web is as a tool that can be used in an infinite number of ways to deliver learning events, and also to provide an archive for the student who is unable to attend (Joliffe et al. 2001). ELive was used at Deakin in the property units in semesters 1 and 2 of the first year of the course (2008) partly for this purpose. In

total four units (i.e. all property and real estate units in 2008) have used eLive technology to deliver lectures to students. Another perceived advantage is that students can individualise their learning to some degree which leads to an improved student experience (Burke and Rumberger 1987). Outside of core teaching, IT can lead to the transformation of teacher from subject specialist to a broader director of studies role as students take more responsibility for their learning. This aspect is a core goal of undergraduate property program at Deakin, based on the belief that students need to develop skills as independent life long learners.

According to Joliffe et al (2001), there are also benefits in using other IT-based educational tools including discussion facilities such as chat rooms, as well as setting up a variety of learner administrative information. Whilst the DSO sites for the property subjects also host chat rooms, provide announcements and notices and to set out trouble shooting materials for learners, eLive also has the facility to enable student chat to occur as directed by the lecturer in 'breakout rooms' created on the site. However, it is argued there must be some face-to-face interaction between the student and lecturer for the maximum advantage to be derived from IT based learning materials (Joliffe et al. 2001) where eLive events occur five times (out of a possible maximum of twelve) each semester.

The potential benefits to student learning of IT are substantial but *what of the disadvantages?* There are concerns about over reliance on technology and dependency on IT for education (Burke and Rumberger 1987). This view is substantiated in the imperative to use the IT 'appropriately', to consider the needs of the student group and for there to be a balance in the course between IT based materials and traditional teaching methods (Barker and Yeates 1985). Much debate and discussion occurred within the property and real estate team and also across the university in the development of the teaching materials used in eLive.

There can be misconceptions about the use of technology in teaching; for example, it can be time consuming to produce the learning materials for use on IT systems and the learning materials are not easier or quicker to develop (Joliffe et al. 2001). Therefore, if a university is seeking to reduce staff preparation and teaching time, substantial development in CAL may not be the best way forward. Joliffe et al. (2001) concluded that with all the time and effort involved in development of e-learning materials, it may not prove to be an advantage. This was also a consideration in the development of the new materials to be delivered in this course.

The teaching materials designer also needs IT knowledge as well as subject knowledge to design an effective learning environment for students (Joliffe et al. 2001). The teaching staff had some previous experience of teaching software, but some additional training was undertaken and there was a conscious decision to commence at a relatively low level of sophistication and to build up over time. Further disadvantages that need to be

considered are that the teaching materials may be static and will need to be regularly updated. In other words, some teaching material may date quickly. Although this is not the case with all courses, many lecturers use online technology to make lectures and information available to students in real time and then the lecture notes are uploaded onto the DSO site for each subject.

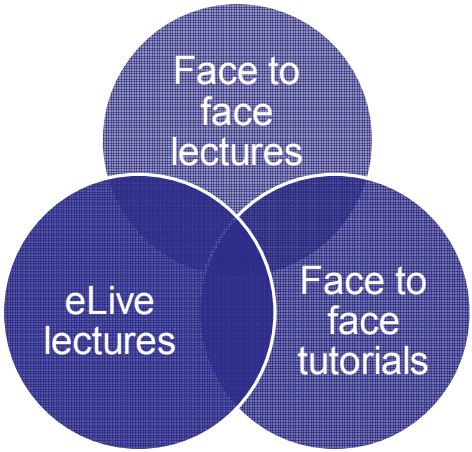
Other potential problems for students may occur with users having equipment with limited capacity to download graphic intensive materials. Joliffe et al. (2001) noted that some learning materials require users to have 'state of the art' PCs and browsers. Finally, in order to make the most effective learning IT-based materials and the most effective use of IT, teachers and lecturers need to be trained as do the students (Joliffe et al. 2001). There is an obvious time and a resource implication here.

THE USE OF ELIVE AT DEAKIN UNIVERSITY

In 2008, a new three year undergraduate bachelor degree in property and real estate (PRE) was launched at Deakin University in Victoria. The way in which the cohort perceives IT in teaching is affected by the composition and social background of the cohort. This first student cohort is comprised primarily of local students, with others coming from rural and regional Victoria. Over 60% of the cohort is mature age or non-year 12. The Bachelor of PRE units also attracted students from other disciplines including commerce, construction management, arts and science.

As highlighted in Figure 1, there are three primary ways that staff interact and engage students in the education process for the property and real estate course at Deakin University. The traditional approach is to use face-to-face methods held on-campus in a lecture theatre. In addition, there are face-to-face tutorials which usually directly follow the face-to-face lecture, although there is often some overlap between these two modes – for example within a lecture, there may be a problem-based exercise which is introduced. The third mode is delivering lectures over the internet via the program eLive (Elluminate 2008). These three deliver modes were designed to create a large amount of synergy (i.e. acknowledging their strengths and weaknesses of each mode) and also to provide students with multiple learning approaches.

Figure 1: Delivery Modes for Subject Content



(Source: author)

When designing the delivery mode for this new course, there were a range of possible options, such as using eLive to deliver the lecturers over the internet. Elive is a software program that allows real time lectures to be delivered remotely to students, either (a) based on-campus using university computers or (b) off-campus such as work or home (Elluminate 2008). Therefore, it is a convenient mode of accessing lectures especially for part-time or working students. As with a typical lecture, a Microsoft PowerPoint presentation can be used as a means of introducing materials and theoretical concepts. Depending on how the lecturer wishes to operate the technology, the students can type in questions or make comments on screen or even write directly on the slides. It is possible to allow participants to use microphones and speak, where for example up to six people at any one time are able to use microphones. Elive allows access to URLs which some lecturers find very useful. It is also possible to play video files.

After discussion with the PRE staff, it was decided to adopt a number of approaches. Firstly, each eLive session would start with a question asking the students to reflect on a topical or unit-related issue whilst waiting for the session to commence. The lecturer can see all participants as they arrive and log into the session. It was also decided to use a high level of visual materials in the lectures (e.g. photographs of properties) as a catalyst for discussion. Students are frequently asked to examine an image and to think about a certain aspect. ELive has a polling function which enables participants to answer questions anonymously; for example, questions may be posed as closed questions requiring yes or no answers, or they can be framed as multiple choice options with up to 5 options. The rates of participation in the question and answer components are high and indicated higher levels of participation than found in the live face-to-face lectures given

to the same cohort. Note the Microsoft PowerPoint slides are made available on the DSO after each session.

METHODOLOGY

For this research, the survey method used a qualitative approach and the results are based on the three accepted assumptions of qualitative research: induction, holism and naturalism (Naoum 2003). Note that this type of research is inductive, in that the researchers had some ideas about how students felt about certain aspects of the education process. The holistic element is derived from examining the whole picture regarding this property and real estate student cohort, as well as their views and perceptions of the dissertation module materials. Finally, the naturalistic aspect of the research comes from investigating the issues in their naturally occurring environment, or in this case the students within the university.

In order to generate externally valid research, it was essential that the researchers fully considered the research population (Naoum 2003). In this study, the total number enrolled in the unit (SRP122 *Introduction to Property Development*) was 69 students. Following best practice identified by Naoum (1998) and others (Robson 1993; De Vaus 1996), a questionnaire was developed. This survey questionnaire was used to meet the objective of ascertaining views about the use of eLive and technology in the delivery of the property course. According to Naoum (2003), questionnaires enable the researcher to ascertain what, when and how something is happening in the subject area, as well as offering high validity. In this case, 44 questionnaires were returned representing 64% of the total cohort.

The questionnaire contained seven structured questions which were either limited choice or open ended. Two of these questions were divided into two parts, so overall there were nine questions in total. Each question is discussed briefly below. In the questionnaire, reference was made to 'DSO' and also 'eLive' although the definitions were explained verbally to the survey participants prior to distributing the survey and explained in detail earlier in this paper. 'DSO' is an acronym for Deakin Studies Online and 'Elive' or 'eLive' is the electronic method of lecture delivery.

The first question sought to assess the background of each participant with regards to their enrolment status in the property and real estate subject titled '*SRP122 Introduction to Property Development'*. Question two asked the actual location where each student accessed eLive from. Question three asked about how frequently each student logs onto the student portal DSO (Deakin Studies Online). The fourth question is in two parts and asks about what type of delivery mode was preferred by each student – part A contrasted face-to-face with eLive (or a combination) and part B sought other comments. The fifth question was also in two parts and asked (a) what are the advantages of eLive and (b) what are the disadvantages of eLive. The sixth question related to the features that a

student actually liked about DSO. The final question asked for any suggestions about how to improve communication or other related events.

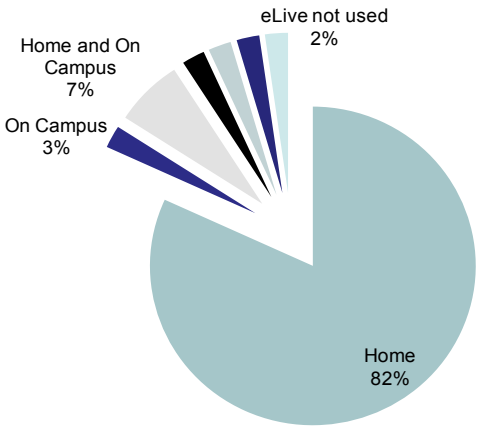
DATA ANALYSIS AND DISCUSSION

This section will discuss specific questions in the research which are relevant to the aims and objectives of this paper.

Access location for eLive

Figure 2 shows the results of survey question 2 which asked *"Where do you access eLive from?"* The options were (a) home (b) work (c) on campus or (d) other. It is important to consider the context of the current delivery mode where a typical semester (12 weeks) includes a combination of face-to-face lectures (7 weeks) and eLive lectures over the internet (5 weeks). The results clearly indicate that the vast majority of students (4 out of 5 students) accessed eLive from home. One student does not use eLive, although this equates to only one student and for the purposes of this survey is assumed to be an error response and therefore is disregarded. The other locations (i.e. at work, other) also recorded a very low response rate with only one or two responses.

Figure 2: Location of student accessing lectures via eLive



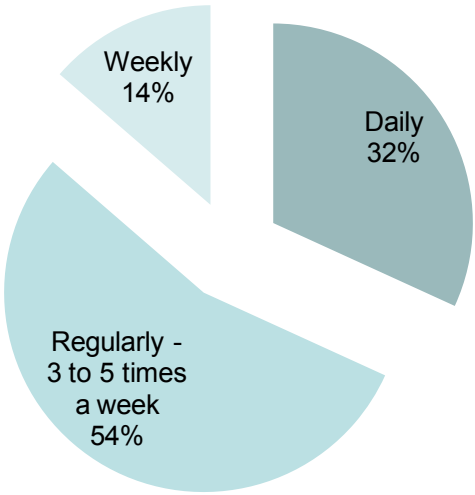
The results of this survey were not as anticipated with regards to access at work. When considering the increasing number of students who are combining work with study, it was envisaged that a proportion of students (i.e. at least more than one student) would remain at work and access their 'live' lecture from their place of employment.

Surprisingly almost all students were at home for the lectures or a combination of both. Another influencing factor may be that the lectures were held between 4-6pm and therefore the student/s may not be at work during this period. For example, many occupations finish at 5pm and it may be easier to leave work early and take the lecture at home uninterrupted. Also, this result may reflect an unfamiliarity with technology for accessing eLive at work, where the easier and safer option may be to access the lecture from home. Another influencing factor may be that the respondents were all first year property students who were in only their second semester of using eLive, therefore were not familiar with using eLive at a remote location.

Frequency of logging onto DSO (Deakin Studies Online) student portal

Reference to Figure 3 highlights the results from the survey question regarding the frequency of each student logging onto DSO on a weekly basis. The major of respondents indicated they would log onto the DSO portal on a regular basis approximately 3 to 5 times a week. Almost one-third of participants check the DSO site on a daily basis and only 14% check DSO on a weekly basis.

Figure 3: Assessing the frequency of a student logging onto DSO



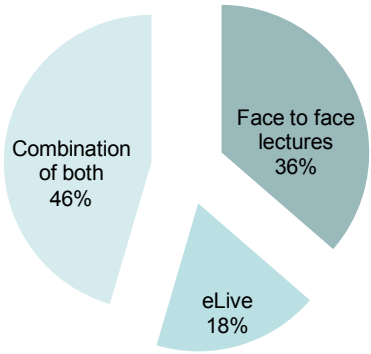
These results are as expected and provide a foundation for discussion about the overall survey results. From a starting point, it is clear that all students access DSO during the

course of their studies and are fluent with external access. Regarding the breakdown of responses, there are other factors which may have influenced the results. For example, a perusal of the access statistics for the programs clearly indicates that students' use of DSO is seasonal. In other words, in the period immediately prior to an assignment due date or an exam, there is very high access traffic over the internet to DSO. Inversely, there is low access to DSO during the first week of lectures when there are no impending due assignments or imminent exams. Another influencing factor may have been interpretation of the question. For example, this question does not make the distinction between a 7 day week or a 5 day working week; therefore it is possible that a student may log onto DSO every day on a Monday to Friday basis, but also have 'regular' access.

Preferred delivery mode for lectures

This survey question focused on a student's preferred mode of lecture delivery with three possible options: (a) face-to-face lectures on campus (b) eLive lectures over the internet or (c) a combination of both.

Figure 4: Lecture mode of delivery preference



These responses provided a direct insight into the preferences of students regarding their preferred mode of delivery. Nearly half of the students (46%) preferred a combination of face-to-face lectures and eLive (internet lectures). This was the most popular response and confirms there is clear support for this combined mode of lecture delivery. Approximately one-third (36%) of the students prefer face-to-face lectures in the traditional lecture theatre format and about one-fifth (18%) would like eLive lectures

only. From a slightly different perspective, it is evident that approximately two-thirds (64%) of students are quite comfortable with eLive and its usefulness as a mode of lecture delivery. This is a relatively high acceptance rate when considering the survey participants were first year students and at this level the use of eLive had been limited somewhat. In other words, the first year students could only respond via typing to the lecturer and there was no use of live webcams.

It would be useful to examine why 36% of students prefer face-to-face lectures. One theory could be related to the proportion of surveyed students who are taking this subject as an elective from another course, where student enrollment records indicated this is approximately one-third of total students enrolled in this subject. Overall, the use of eLive is relatively limited throughout the university and not every lecturer uses this delivery mode. Therefore, it is possible that a survey participant could be a student who is unfamiliar with eLive (i.e. taking an elective from another course) and therefore would prefer the face-to-face option since they are already on campus for their other lectures. Another influencing factor could be that a student taking the eLive lecture in second semester (i.e. this subject was offered in second semester) did not receive the eLive training that was offered to students in at the commencement of the university year. This would have affected the mid-year entry students (approximately 10% of students in the subject) and the students taking the subject as an elective (if they did not take a first semester property elective). Therefore both of these cohorts, being the elective students and the mid-year entry students, would most like prefer face-to-face lectures as they were unfamiliar with using eLive.

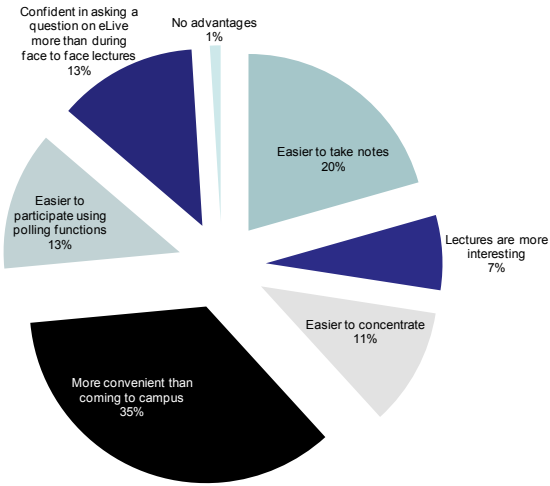
Advantages of using eLive

Question 5(a) in the survey examined which aspects of eLive, if any, were perceived as advantages of taking lectures over the internet. Over one-third of participants (35%) indicated that the most important advantage of eLive was that it was more convenient than coming to campus for a face-to-face lecture. One in five students (20%) noted it was easier to take notes, followed by being easier to participate in polling (13%) or structured questions to students such as A, B or C, and then the ability to ask questions (13%). Approximately 11% indicated an advantage of eLive was that it was easier to concentrate and 7% suggested eLive lectures were more interesting. One student (1%) did not agree there were any advantages with using eLive as a lecture delivery mode.

The results of these questions were generally as anticipated with regards to convenience, especially since an eLive lecture can be taken from any worldwide location as long as a computer with internet access and audio speakers was available. There has been a general trend over an extended period for students in face-to-face lectures to take fewer hand-written notes (possibly due to the widespread use of PowerPoint) although this survey question showed that eLive allows students to take individual notes which is an encouraging result. Other eLive advantages noted by the respondents was that a student is generally more confident in asking questions and participating in a survey, which again is in direct contrast to a face-to-face lecture where individual student participation

(e.g. "who knows the answer to this question?") is often limited with few or no responses.

Figure 5: Advantages of eLive as a delivery mode



Advantages of using eLive

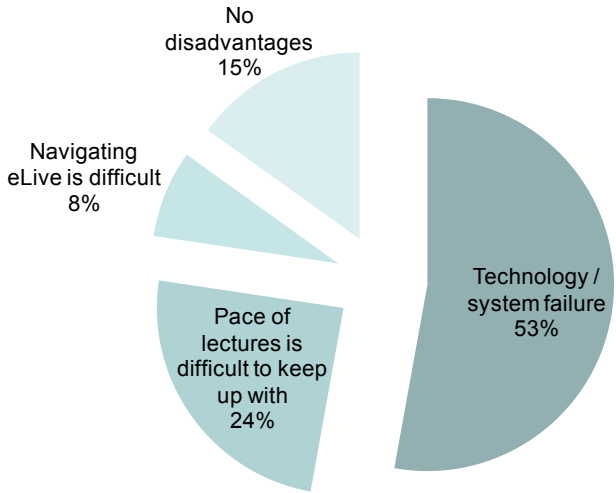
The next question in the survey asked the students to identify aspects of eLive, if any, were perceived as advantages of taking lectures over the internet. As shown in Figure 6, most of the participants (53%) indicated that technology failure was their largest issue, followed by the pace of the lecture is hard to keep up with (24%). Approximately 8% of the students indicated that eLive is difficult to navigate and 15% of respondents replied that there were no disadvantages.

Further interpretation of these results clearly shows these first year students had trouble using eLive at some stage, although this would most likely be linked to their initial use of the program. For example, one student is an air traffic controller and is unable to use eLive at their place of work. Another technological aspect of eLive is that a specialized program titled 'Java' is required, where the software will not work without the latest version of Java being installed. Coupled with the reply that 'navigating eLive is difficult', it can be concluded that insufficient training was given to these students prior to their use of eLive as a delivery mode. The only training the students received was (a) a simulation of eLive in a face-to-face lecture in week 2 of the semester and (b) direction

to the website which has the user manual for eLive. In hindsight, the students need more training about the actual use of eLive, especially for students who are not computer literate.

The feedback about the pace of lectures being difficult to keep up with is worthy of noting, although this may be due to a student being distracted (i.e. having another website open and not following the lecture only on eLive) or not taking notes. It will be interesting to re-examine the first year students after additional eLive training to see if they are more confident with the use of eLive with regards to technological/system failure. It is envisaged that by having a specific user guide for these students (e.g. 'eLive for property students'), there will be an increase in the proportion of students who feel there are no disadvantages with eLive.

Figure 6: Disadvantages of eLive as a delivery mode



Other comments

Three of the students also supplied additional comments to this question as listed here.
(a) The first comment related to the indirect benefit of the enhanced ability to ask questions via eLive as opposed to face-to-face lectures. The reference to a 'self-paced' lecture was a lecture in an eLive format where the lecture was prerecorded – each student would 'self-pace' their lecture and chose when they listened to the audio file and use the Microsoft PowerPoint presentation simultaneously (after both files were downloaded).

"I enjoy the eLive as I feel I take more in and you can ask questions that you may not ask during face-to-face. The self-paced lecture was great as you could pause and get as much out of the lecture"

(b) The second comment highlighted the importance of face-to-face lectures. Regardless of how advanced the technology for the delivery of lectures becomes, there are indirect benefits for face-to-face lectures such as face-to-face student interaction with each other and also with the lecturer.

"Coming into the lecture allows us to discuss work with other students and ask questions"

(c) The third comment especially emphasises the intended use of eLive, namely that the student would be able to attend live lectures at remote location away from the campus. This benefit should also be discussed in the context of a large highly urbanised city such as Melbourne; travel from one side of the city to the Burwood campus can easily take one hour and parking is often limited at times.

"I enjoy not having to travel as I drive a fair way to uni but when at home using eLive I find I am easily distracted so a mix of both (lectures) is good for me"

CONCLUSION

This paper has provided a unique insight into the students' perspective about the use of technology to assist knowledge transfer in a property and real estate course. In 2008, Deakin University (Melbourne) introduced a new property and real estate course where the lectures were delivered via a combination of (a) face-to-face on-campus lectures and (b) eLive lectures over the internet. This paper examined the results of a survey of first year property and real estate students with regards to (i) the use of DSO (Deakin Studies Online) which is the student portal where lecture notes, readings, assignments and other relevant course materials are accessed by students and (ii) the effectiveness of eLive including the perceived advantages and disadvantages. There were five important findings from this research.

The first major finding was that property students prefer a combined lecture mode, rather than only the traditional face-to-face method or via eLive (see Figure 4). This may be partly due to the increasing number of students who are combining study with part-time or full-time work, which in turn places substantial pressure on their time allocation for attending a lecture. It appears that today's students are under increasing pressure to combined study and work in an efficient manner, where eLive appears to address some of this pressure. Only one-third of students preferred a face-to-face lecture format although this may be partly due to technological difficulties associated with eLive (see Figure 6).

The second major finding is that most students (82%) access their eLive lecture from home (see Figure 2). This is higher than anticipated but nevertheless confirms that students chose to be off-campus for the lecture. It was anticipated that a higher proportion of students may be at work, although a lower return may be linked to many first year students in only part-time employment and the timing of the lecture between 4-6pm (i.e. at a later time in the day). The location for access may change over time as students become more familiar with the technological capabilities of eLive i.e. the program will operate on any computer with internet access, audio speakers and the correct program e.g. Java.

The third major finding was that students prefer eLive for additional reasons than access only (see Figure 5). These reasons support the use of eLive or an internet delivery mode to enhance a student's learning experience and knowledge base. Other advantages of eLive which were surprising, included the ability to take notes (20%) and also the ability to contribute to questionnaires via polling (13%) as well as being able to ask direct questions (13%). It appears that eLive reduces some of the barriers in face-to-face learning, such as perceived embarrassment when asking a question in class, even though the question is somewhat anonymous with less anxiety when asked via eLive.

The fourth major finding was that students need to have more training about the use of eLive technology due to the high proportion of technology/system failures (53%) as shown in Figure 6. Additional training would assist to overcome problems with navigating eLive (8%) and also how to keep pace with lectures (24%). Although it is common practice to advise students how to maximise their learning experience in a face-to-face lecture, this also needs the same approach with an eLive lecture.

The last finding was that students access the on-line student portal 'DSO' (Deakin Studies Online) on a regular basis (see Figure 3). All students access DSO at least weekly although it is most likely that the frequency of access would vary according to the actual phase in the semester e.g. impending exam or assignment due date. Overall, this finding confirms that all students are computer literate and also are used to on-line learning technology for assignment submission and accessing course material.

These five findings have provided an insight into how technology can be used to enhance a student's learning experience in a property and real estate course. The survey results were from the new course at Deakin University delivered at the Burwood (Melbourne) campus, therefore caution should be exercised when seeking to apply the findings to another campus. For example, in terms of population, the city of Melbourne is the second largest in Australia with associated traffic congestion problems on a regular basis. Therefore the attractiveness of eLive may not readily apply on a campus which does not have this problem e.g. a regional campus where the students live in local residential colleges.

It is envisaged that other university courses, not necessarily in the property and real estate discipline, will benefit from this research and evaluate how their courses are being delivered from a student's perspective. It is clear that a typical student in today's educational system is under substantial pressure to operate in an efficient manner whilst balancing competing pressures including study at university, work (part-time or full-time), recreational activities and so forth. It appears that the use of new technology (e.g. eLive), although it is advocated they should not replace face-to-face lectures, will provide students with an enriching innovative new-age experience and an opportunity to balance these competing demands.

AREAS FOR FURTHER RESEARCH

It is recommended that this survey is conducted on a regular basis in order to reliably assess the changing student perception towards technology in the delivery of educational material. For example, the combination of face-to-face lectures and eLive lectures may alter over time and the educational institutions may have to change their delivery modes to suit over time. At the very least, they should be aware of these changing demand trends. A regular survey would be able to monitor these changing perceptions and allow a longitudinal research project to be established.

A final recommendation is for the survey questions to be refined in order to allow for a more detailed analysis. For example, a cross tabulation analysis would potentially identify what type of student (e.g. year 12 entry or mature age) preferred eLive than the other. In addition, it would be beneficial to know what technological difficulties the students were experiencing with eLive and how this could be remedied.

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