

Reactions to online learning from novice students in two distinct programs

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Developments in information and communication technologies (ICT) have been rapid in recent years and have promised improved education and training to an increasingly diverse cohort of students. While it is increasingly important for universities to implement a growing array of online courses in order to remain economically competitive, questions remain regarding pedagogical issues, economic costs, philosophical issues, policy issues and personal issues such as student preference for online versus face to face delivery. This paper reports on an investigation which aimed to provide a greater understanding of online learning through the eyes of higher education students in two very distinct courses (undergraduate and postgraduate). An instrument was designed to gather data on the students' prior experience and perceptions of online learning environments. The findings revealed that students are entering the University as technically competent and confident people who expect to utilise technology in their learning environment. Students in both groups indicated that the most important feature of the opportunity to work online was the flexibility this approach allowed in terms of being able to study in their own time and in other environments such as home. They also identified that this mode of delivery enabled them to enhance their learning.

Keywords: online, student experience, flexibility

Background

The university that is the focus of this research has committed substantial funds towards the implementation of various modes of online learning. This ranges from delivering whole programs online to small numbers of units within programs utilising flexible approaches. The study involved a sample of new students ($n = 62$) who had enrolled in undergraduate and postgraduate programs in the Department of Education in a Western Australian university in semester one, 2004. These students represented a diverse group of young people who were engaged in pre-service teacher training as well as adult learners in the field of training and development. Both internal (face to face learners) and external students were part of the research. This research chose to investigate student reaction to and reflections upon the various modes of delivery. The Training and Development students were involved in a totally online delivery mode while the Bachelor of Education students participated in a mixed mode (face to face and online) structure.

The Training and Development Program has been offered to students completely online since 1995. The initial decision to implement an online approach was influenced by the financial implications of continuing to offer face to face teaching to what essentially was a small cohort of students ($n=34$). With the Training and Development Program delivering both undergraduate and postgraduate courses, the numbers of students enrolled in individual units were deemed too low to support staff employment and the allocation of physical space. As the program began to grow towards the late 1990s the delivery mode was sustained due to the fact that the student cohort had become quite diverse in the physical sense. Western Australia is geographically a vast state and students in remote and rural areas began to become attracted to the program due to the ease of access, the distance and online delivery approach offered. Currently, the majority of students prefer the method of delivery, as they are largely adult learners who are engaged in full time employment (many with additional family responsibilities) and the online nature of the program allows many of them to work at their own pace in between further ongoing commitments.

The students in the sample who were involved in the pre-service teacher training program were enrolled in the Bachelor of Education degree in the Department of Education. This is a four year degree program which has largely followed a traditional model of delivery and has therefore typically included lectures, tutorials and workshops. During the late 1990s individual unit controllers began to experiment with the

implementation of online components such as posting lectures within templates using WebCT, encouraging students to use discussion boards and mounting assessment protocols within flexible delivery formats. Although one of the strategic goals of the university is to increase the engagement with online teaching and learning, the program maintains an ad hoc approach to online delivery which relies ultimately upon the skill level and interest of individual lecturers within the department. The particular unit in the Bachelor of Education program involved in this study was delivered in a mixed mode where the students met face to face for 2 hours on a weekly basis throughout the semester and also had access to online resources such as email, discussion, library, class notes, and websites.

Literature review

Rapid advancements in current technology have meant that flexible delivery has advanced equally rapidly, offering students wide choices in learning methods. According to Choy, McNickle and Clayton (2002) the growth of online technologies has resulted in the development of online social networks and the ability to communicate with others on a regular basis. Students are able to overcome feelings of isolation and disengagement with the learning experience as they create their own communities both within the confines of the online material and beyond. Harper et al. (2000) see online technologies as attracting teachers and trainers to the delivery option because of the 'anytime', 'anywhere' philosophy that underpins much of this approach to learning. They warn however, that teachers working in this environment must be aware of the changing nature of student literacy with regard to online competency as this is seen to impact upon successful engagement with the learning materials and process. This issue was of chief concern to the program designers, hence the survey instrument administered in this study attempted to identify the students' prior experience with online learning. The key was also to focus on new students to the course.

Goodwin (1993) found that learners in higher education settings perceived the Internet as an appropriate delivery medium but warned that frustration with technical aspects could lower student satisfaction and ultimate achievement of learning outcomes. Online learning challenges learners to develop new skills and re-conceptualise learner requirements.

According to Cornell and Martin (1997) challenges for facilitating online learning include the maintenance of learner motivation, the degree of acceptance by student and teacher, the prior knowledge of each participant, the students' attitudes towards technology, the level of content and the degree of interactivity. Cornell and Martin (1997) also included aspects such as ease or difficulty in using the system and basic communication skills as having an impact on the successful implementation of online learning. All of these 'challenges' identified by Cornell and Martin (1997) were considered when designing the online learning in both of the programs however this study provided a greater understanding of the immediate challenges to these new students. Similar issues were raised by Corrent-Agostinho and Hedberg (1998) in their implementation of online learning in a postgraduate educational technology course. Their research found that students involved in the program believed that the major problems to be overcome included lack of motivation to participate, procedural confusion and technical difficulties. Many universities have implemented education via computer mediated communication (Jiang, 1998). Students perceived that they had attained comparable academic achievement via online course delivery and believed that teachers who were involved in flexible delivery of materials were more inclined to encourage student participation and teacher to student, student to student interaction than those teaching in more traditional modes. Educational approaches which are based on constructivist principles and findings from cognitive psychology have introduced new conceptualisations of learning and instruction (Marshall, 1996).

Oliver and Omari (1999) found that students believed the online environment required them to invest greater amounts of time in preparation for class activities and as such, added to their workload. Despite this however, the students reported a positive response to the new learning environment. Alexander and McKenzie (1998) in their report on the evaluation and implementation of technology based learning systems in higher education claimed that while there were many successful online teaching implementations, careful project selection, re-training for teaching in this mode and support for learners using this mode were critical to achieve effective outcomes for online technologies. There is evidence in the literature to suggest that online learning is growing rapidly (Goodyear, Salmon, Spector, Steeples & Tickner, 2001) and according to Leonard and Guha (2001) online learning offers students and institutions

great flexibility. As a result, online courses are increasing in number and scope. However, it remains to be seen whether this is translating into improved learning. Ongoing evidence from the literature suggests that the maturation of online delivery will be realised once innovators begin to develop realistic strategic, pedagogical and commercial models as we move further into the twenty first century.

Research method

Interpretative research focuses on a specific social setting or phenomena. As noted by Patton (1990) and Denzin & Lincoln (1994), within the interpretive approach there are many methods - however they all share the same philosophical assumption, which is that reality is constructed by individuals interacting with their social worlds (Merriam, 1998). In other words, qualitative researchers are concerned with how individuals make sense of their world and their experiences. In the present study, this interpretative approach was carried out using a case study approach, with groups of internal and external students within one Education Department as the case. Students were asked to complete a survey. The findings were analysed using a coded content analysis and frequency counts which revealed a number emerging factors that appear to have influenced the students' reactions to online learning. This method of describing and revealing what happens in the dynamic social environment of a class group, rather than more traditional and controlled quantitative approaches certainly appeared more appropriate. With such an approach the assumption is made that the findings of this study are not only pertinent to these student groups but also to other students studying in an online environment. The study was limited in the size of the sample from each program and that the focus was on two particular units (one from each program).

The instrument

The survey titled *Online Investigation Survey (OIS)* was administered at the beginning of semester one 2004. This included a sample of 62 students who were new to both the Bachelor of Education and the Training and Development programs. Those students participating in the Bachelor of Education course were classified as internal students and those enrolled in the Training and Development program classified as external students. The survey format consisted of checklists, multiple choice responses, several likert type scales and open ended questions. The aim of this survey was to investigate the students' prior knowledge, reasons for enrolling in the particular course, what students were looking forward to, what they feared the most in terms of interacting in an online environment and their expected levels and types of contact with their lecturer and fellow students.

Results

As identified earlier the survey was administered in the first week of the semester to a sample of new students to the course (Training and Development n=20; Bachelor of Education n=42) in order to determine their familiarity with and perceptions of online learning.

The survey revealed that the majority of the students in the Training and Development (75%) and the Bachelor of Education (71.5%) programs felt competent to very competent in using the WebCT online learning environment even at such an early stage of the semester. This is interesting given the difference in age between the internal and the external students. The average age of the internal (B.Ed) students in the sample is 22 years and the average age of the external students (Training and Development) is 40 years. Younger students usually begin their university study with a reasonably sound knowledge of engagement with technology and therefore their level of technical competence would be expected to be high. The Training and Development students may have developed similar skills in their work environment as a means of remaining competitive. These students possibly selected this particular method of delivery (as opposed to similar courses in other universities delivered in more traditional modes) due to the fact that they felt they had already developed the skills necessary to interact successfully in the online environment.

One of the early questions within the survey was designed to establish the participant's rationale for enrolling in their particular unit. Table 1 identifies the coded responses to question four of the survey - 'Why did you enrol in this particular unit?' Table 1 also details the response for each group as well as the

percentage of participants who responded in a particular way. It is important to note that some participants identified more than one reason for enrolling.

Table 1: Rationale for enrolment in the unit

Training and Development	n=20 % of sample	Bachelor of Education	n=42 % of sample
Increase career options	50%	Enhance professional life	57%
Further skills and knowledge	45%	Course requirement	31%
Improve the workplace	20%	Enjoyment	11%
Professional development	20%	Improve skills and knowledge	4%
To be challenged	5%	Overcome fear	2%

The Training and Development students indicated a clear relationship between their choice of enrolment and the workplace. These students view the course as professional development which has the possibility of either improving their career options such as promotional opportunities or advancing their skills and knowledge in order to add value to their respective work environments. As these students are all in full time employment, they are attracted to study programs that are linked to the enhancement of the workplace culture and their place within it. The internal students appeared to look ahead to their professional lives as teachers in schools with the realisation that technology will play an ever increasing role in the teaching and learning process in the classroom. Their desire to build on their current skills in order to advance the development of appropriate curriculum was of importance as indicated in Table 1. A number of these students however were also enrolled in the unit in order to satisfy basic course requirements.

The participants were asked to explain what had attracted them to the external mode of delivery in item 2 of the survey. Responses were content analysed and the frequency of comments for each category were tabulated. Table 2 displays the percentage of participants whose response fell into the category. An example for each content category is also provided along with the ID which refers to the participant's identification.

Table 2: Student attraction to external mode of delivery

Content Category	n=20 % sample	Training and Development - Example
Flexibility	75%	<i>Because I am working FT, I prefer to work through this mode of delivery. In my own time and at a time convenient. (ID 18)</i>
No other choice – geographical distance	20%	<i>I live in a Rural area so can't access classes. (ID 14)</i>
The challenge – requires self discipline	15%	<i>I was also keen to challenge myself by tackling a mode of learning that requires a lot of self discipline. (ID 11)</i>
Ease of use	5%	<i>Ease of use. (ID12)</i>
Learning at individual pace	5%	<i>I am a mature aged student with a heavy workload and family commitments. The flexible delivery allows me to learn at my own pace. (ID 5)</i>
Content Category	n=42	Bachelor of Education - Example
Flexible/convenient	52%	<i>Having this unit online makes it more convenient to study. Students are able to review work and complete work at home. (ID 3)</i>
Increase computer literacy	38%	<i>Opportunity for more practice using technology as a part of learning and teaching. (ID 18)</i>
Access to resources	9%	<i>I feel this is a much better way as being online we are able to access all information from our home computers, as well as communicate much easier with fellow classmates and the lecturer. (ID 19)</i>
Remain up to date without attending classes	4%	<i>It is great because if you cannot make it to a class you can catch up at home. Technology is becoming a huge aspect of schools and learning as much as possible in a hands on method is fab. (ID 11)</i>

Students in both groups indicated that the most important feature of the opportunity to work online was the flexibility this approach allowed in terms of being able to study in their own time and in other environments such as home. Students also commented that this style of interaction was more convenient and that learning could take place in more fluid timeframes that could be arranged around the demands of offspring and family in general. Comments suggested that this approach to teaching and learning

increased the possibility for communication between students and lecturers and improved technical skills which are becoming increasingly essential in professional life. The Training and Development students were also attracted to the fact that studying in this mode requires self discipline. Their comments indicated that as professional people they have minimum time to engage in learning activities and that they enjoyed the sense of personal control studying online afforded them. Most students agreed that flexible delivery allowed them to learn at their own pace and increased the opportunities for reflective practice.

Both the Training and Development and the Bachelor of Education students were asked to reflect upon their fear about interacting in the online environment. Table 3 displays the percentage of participants in each sample who responded in relation to the content categories identified from the data. Interestingly, the Bachelor of Education students indicated that 40% of the sample had experienced no fear, yet 20% of the Training and Development students felt the same way. The Training and Development students were more concerned with the possibility of encountering technical problems along with appearing foolish as a result of making mistakes. These students suggested that as their work lives were extremely demanding the possibility of technical difficulty due to either inadequate equipment or connection failure was of concern to them. Making mistakes included factors such as missing out on online discussions due to technical failure and concern regarding the opinion of peers while reading their reflections on new learning in print. They also indicated that they lacked confidence due to issues related to the potential misinterpretation of their written comments and that this would impact on the openness of their interactions in the online environment. A number of comments suggested that words and discussions may be taken out of context and they were concerned that they would not be able to rely on verbal and visual cues when seeking feedback. The Bachelor of Education students appeared to be more pragmatic and concerned with the potential loss of data and the overall security of the system. A few of these students also noted their concern regarding the potential reduction of personal contact.

Table 3: Student fears regarding online interaction

Training and Development	n=20 % of sample	Bachelor of Education	n=42 % of sample
Technical problems	25%	No Fear	40%
Making mistakes & looking foolish	25%	Potential lose of data	23%
No Fear	20%	Security/Viruses	19%
Lack of confidence	20%	Reduction of personal contact	11%
Long discussion postings	10%	Doubting the reality of the communication	5%
Lack of immediate feedback and visual cues	10%	Pace too fast	5%
Feeling disconnected	5%	Other	5%

The sample was clearly satisfied with the flexible delivery of the learning materials. Seventy five percent of the Training and Development students preferred the online nature of the program and sixty four percent of the Bachelor of Education students indicated that they were satisfied with the mixed mode delivery of the unit they had been involved in. All students in both groups clearly recognise the ubiquitous nature of technology in their everyday lives and how it does and will continue to influence and shape education – not only their own personal teaching and learning but also education systems. The sample was asked to comment on the role technology currently plays in their education and indicated that they believed it to be substantial. They believed that an increase in accessible technology compliments the processes involved in education such as research and the location of resources. When asked to predict the typical delivery mode for education over the next five to ten years the sample suggested that the increased use of online technologies would not only affect the individual learner but also learning systems such as schools. The students believed that learning would become multi-modal, giving everyone the opportunity to work in their preferred manner and that the traditional role of the teacher would be altered to one of facilitator of learning. They suggested that there would be a much reduced reliance on paper based assessment and that lectures would occur online and allow for immediate and ongoing electronic interaction and feedback. Table 4 shows a number of examples from students in both groups regarding the future role of technology in education.

Table 4: Predicted future delivery mode for education over 5 to 10 years

Category	n=20 % of sample	Training and Development - Example
Online delivery – immediate feedback, communication, virtual	80%	<i>Mostly online to the workplace or school with teachers only required 'in the flesh' to assess practical skills. Computers, simulators and video links will be used to a greater extent. (ID 20)</i>
Multi-modal	10%	<i>I hope it will be multi-modal, giving everyone the opportunity to work in their preferred manner at some stage, face to face interaction will occur, however you may not all be in the same room. (ID 16)</i>
People accessing chunks of information	5%	<i>I hope we will still have classes and human interaction but I think remote classes and people accessing chunks of learning as it suits may be the way of the future. (ID 3)</i>
Reliant more on ICT	5%	<i>Reliant on technology even more than now. (ID 19)</i>
Other	10%	<i>Less paper assignments and less 'on campus' time. (ID 1)</i>
Category	n=42	Bachelor of Education - Example
Increased computer access (resources)	33%	<i>I can imagine every student will eventually have their own laptop on their desk. (ID 36)</i>
Flexible delivery	23%	<i>We are leaning towards a technological delivery, teachers now use powerpoints, webquests, the internet, education software, overheads etc to help teach their students. (ID 42).</i>
Mixed mode	14%	<i>Still very interactive and personal but with a greater use of technology for performing classroom activities and learning. (ID 18)</i>
Schools will contain a major online component (i.e. WebCT)	11%	<i>I think that all schools will have a comprehensive technology area from which all students will have to access at least 2-3 times a week. Students will also have some program similar to WebCT in which they can access homework/assessment details as well as a list of resources to use. (ID 1)</i>
Shift in teacher role - facilitator	4%	<i>Teacher as a facilitator and students constructing their own knowledge. Teacher's role becoming more one of a guide with the aid of technology become more prominent. (ID 11)</i>
More sophisticated technology	2.4%	<i>No typing, voice command, one touch to retrieve information. (ID 23)</i>

The sample was asked to comment on their preferred method for interaction throughout the units. It is clear from the results displayed in Figure 1 that the majority of the students prefer to interact not only with the materials but also with the lecturer and fellow students. Twenty percent of the Training and Development students suggested that they preferred to interact directly with the lecturer and the materials as they were not interested in 'wading through pages of online discussion at the end of a busy work day'. These responses may be reflected in their preference to work on their own in the first instance.

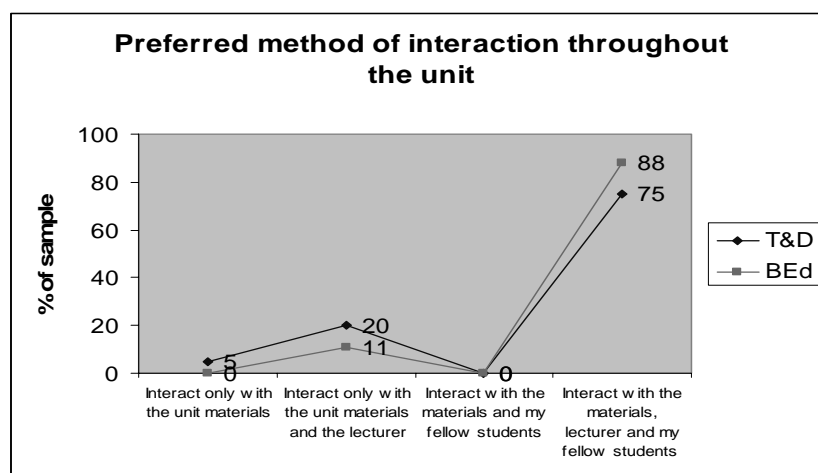
**Figure 1: Preferred method of interaction throughout the unit**

Table 5 elaborates on the data in Figure 1 further and identifies the student's rationale for their preferred interaction. It would appear that most students perceived the opportunity to interact with fellow students as beneficial in terms of giving and receiving feedback. The sample expressed an interest in more opportunities for collaborative learning experiences as they believed these would further advance the learning process and allow for more creative means of problem solving. While the Training and Development students viewed these online exchanges as being able to enhance the provision of feedback, the Bachelor of Education students welcomed the potential relationship building aspects of such an interchange. They sought to make friends, help each other with assignments and develop improved relationships with others in the unit.

Table 5: Rationale for preferred interaction

Training and Development	n=20 % of sample	Bachelor of Education	n=42 % of sample
Feedback	60%	Access to more resources	50%
Sharing	50%	Enhances learning	30%
Time	25%	Prefer to work on my own	21%
Enjoy working on my own	15%	Sharing	16%
Belonging	5%	Enjoy working with others	14%

Conclusion

The University which is the focus of this research has been in the process of implementing online approaches to teaching and learning over the past decade and as a result has invested substantial funds in developing structure and content across programs which match online learning modes. The results of the study clearly show that students have a raised awareness of methods of flexible delivery. Student expectations of studying in this manner are high. The current sample in this study indicated that they were content to work in this environment and that they were keen for other units within their program to utilise elements of online learning.

The new students appeared to feel confident in using online technologies. The Training and Development students were clearly motivated by the professional development opportunities and the enhancement of career opportunities as a result of their engagement with the course. The Bachelor of Education students were already looking ahead to their professional lives as teachers in the school system and were highly aware of the increasing role this type of delivery will have on the development of their technical skills. The sample was attracted by the opportunities to enhance their computer literacy through the flexibility and convenience of being able to study and reflect on their learning in their own time. Ease of communication was also cited as one of the attracting factors with regard to studying online. The students felt they could gain easy access to lecturers and fellow students as well as resources and could remain up to date with the requirements of the units without having to attend classes. According to these results it would appear that the Training and Development as well as the Bachelor of Education programs under study have successfully met the challenges for facilitating online learning identified by Cornell and Martin (1997). They noted that the degree of acceptance by students, the maintenance of learner motivation, the prior knowledge of each participant and the student's attitude towards technology are all critical factors in the successful implementation of online learning.

The Training and Development students were naturally more fearful initially of interacting online as they are more mature adult learners working as professionals in their fields without prior training in technology. They expressed concern regarding technical problems and also appearing foolish and making mistakes with their printed responses to discussions. Both groups expressed doubts related to the reality of the communication due to the lack of visual and verbal cues when communicating. This reflects the findings of Graham & Misanchuk (2004) who discovered that communicating the unseen can prove to be problematic for adult learners in online environments and that not knowing how to interpret silence by certain individuals after ideas were presented to the group caused the group some anxiety. They also found that when using asynchronous communication such as that used in both the units in this current study, it is often difficult for the group members to know if their fellow students have read or received their communications. It may be that future development of the online components of both the Training and Development and the Bachelor of Education programs will require more attention to establishing protocols for interaction and interpretation of online communication in general. However, much of these

concerns will be overcome as web based delivery systems become more sophisticated and enable students to determine whether communication has been received and read. Further to this, the Bachelor of Education course under study provides clear guidelines for the appropriate use of online learning communication systems, perhaps this needs to be introduced to the Training and Development program.

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