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Preparing early childhood student teachers for web-enhanced distance learning: Student perceptions

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Web-enhanced distance learning is a new mode of study for early childhood teachers, which has been trialled at New Zealand Tertiary College. This article reports on some aspects of a comprehensive pilot project studying the effectiveness of course delivery through web-enhanced distance learning. In this study student perceptions of the *Learning Online* orientation course are considered. Students commented on their computer skills, attitudes towards technology and the perceived advantages and disadvantages of web-enhanced distance learning. Flexibility, convenience and improved computer skills were noted as advantages of studying through a web-enhanced mode, whereas a lack of direct lecturer contact and time management were considered disadvantages of web-enhanced distance learning. This pilot study would indicate that from the *Learning Online* orientation course students gained the technical and study skills necessary for successful learning in an online environment.

Introduction

New Zealand Tertiary College, an early childhood teacher training provider based in New Zealand, is currently investigating the effectiveness of a new mode of study for early childhood education students. The web-enhanced distance learning mode utilises online technologies, and offers students a different type of flexibility than is currently offered in other modes of study offered at the College. Following a review of relevant literature and outline of the study, the results are discussed in relation to the review and the New Zealand eLearning guidelines.

Modes of study

A variety of terminologies is used to explain the phenomenon of education that utilises a range of modern technologies to deliver learning opportunities. This study does not enter into the debate of defining the terms, but recognises that although the literature reviewed utilises a range of terms, there is commonality in the intent to deliver effective learning opportunities to students through an online mode, without necessitating their attendance at an institution. Throughout this article the term web-enhanced distance learning will be used as this refers to the mode of online delivery that is utilized at New Zealand Tertiary College.

Distance learning has been identified as a potent educational mode of delivery that can be used to increase the availability of valuable professional growth experiences for early childhood student-teachers (Education Commission of the States, 2002). Ongoing technological advances in the last decade have enabled educational providers to introduce innovative new



modes of teaching, which are an alternative to the traditional ways of delivering learning opportunities. These are proving to be very popular with students - "distance learning is now the mode of study chosen by over 85% of the New Zealand Tertiary College (NZTC) student body" (Donohue, Fox, & Torrence, 2007, p. 39).

In a recent review of the literature it was indicated that few researchers have made comparisons between online and traditional classroom courses (Sunal, Sunal, Odell, & Sundberg, 2003). However, studies where comparisons have been made (e.g., Davies & Mendenhall, 1998; Jewett, 1998; Wegner, Holloway, & Kroder, 1997) found no differences in the grades of students who attended traditional classroom-based courses and students who utilised web-based learning components. Young (2002) found that the traditional teaching/learning approach is not ideal for all students. Several researchers have studied factors such as learning styles in relation to web-based courses, and found that a range of learning styles (e.g., auditory, visual, kinesthetic) could be accommodated for by web-based education, thus catering to a diverse range of students (El Mansour & Mupinga, 2007; Shih, Ingebritsen, Pleasants, Flickinger, & Brown, 1998).

Student expectations and attitudes towards online learning

Hosie, Schibeci and Backhaus (2005) observed that: "As the fastest growing form of information exchange within our society the Internet allows multimedia technologies to be available to anyone – virtually anywhere" (p. 540). One of the main advantages of a web-enhanced program is the different flexibility it allows. Students can complete their studies at a time and location that is suitable to them. El Mansour and Mupinga (2007) note that learning in online environments take place in flexible time frames that are not constrained by class/organisational schedules. Another factor that differentiates web-enhanced learning from other distance learning modes, is that students can develop and participate in a community of learners who exchange information and ideas to enhance their learning and professional development (Fox & Donohue, 2006).

Drennan, Kennedy and Pisarki (2005) conducted a study of 256 first-year marketing students in Australia. These students completed a flexible learning course with web-based components. The researchers found that positive perceptions of technology and a self-directed learning mode in particular contributed to student satisfaction with the course. In addition, they found that a positive attitude toward innovation also meant that students viewed the new technology more positively.

Web-enhanced distance learning as a means of training early childhood teachers

Online programs catering to the needs of early childhood teacher training courses have increased, and this has prompted providers to ask "how best to teach online" not "if they should provide an online option" (Fox & Donohue, 2006, p. 31). Considering the amount of information and resources available to early childhood teachers on the Web, they need to be familiar with accessing and interacting with web-based information. Similar to other professions, enhanced information technology (IT) skills, are



essential to early childhood education student-teachers (e.g., Kaynama & Keesling, 2000).

Although recent literature clearly denotes that online learning modes effectively facilitate learning across a range of courses and topics, there has been doubt over the ability to learn to become an effective early childhood teacher through this mode of study, mainly due to technology phobia. Hunt (cited in Lai, 2001) conducted a survey of 80 students and found that “many beginning teachers had very few personal or pedagogical skills in the area of IT and many student teachers had little experience of using IT in their field practice” (p. 12). The perception of early childhood education students being low on technology skills needs further investigation. However, it does raise awareness that students will need sufficient preparation to ready them for web-enhanced study, thus enhancing not only the quality of their learning experience, but also indirectly their technology skills.

It has been identified that students need technical competence if they are to succeed in an online learning environment (El Mansour & Mupinga, 2007). McVay Lynch (2001) found that students, who did not receive an effective orientation to acquiring the skills necessary to participate in online learning, showed high course drop out rates, more problems with technology and social isolation. This has the flow on effect of students failing to enrol for further online learning experiences. As Donohue, Fox, and Torrence, (2007) state, students “are very worried about their lack of technology experience and skills, and they fear that learning online will be a lonely, isolated experience” (p. 35). Even though students may start their online learning believing it may be an isolating experience, Levine (2005) disputes this assumption. He believes that online education has an even greater potential to create effective relationships and social experiences than traditional face-to-face modes of teaching. Research into social relationships in an online learning environment require further investigation to affirm Levine’s standpoint, however this pilot project will focus on aspects relating to orientating students to web-enhanced learning.

Method

Web-enhanced distance learning pilot project

A pilot project was conducted to investigate the effectiveness of the web-enhanced mode of study with a small group of students, who completed four degree level courses over a period of six months. This project was advertised within one national early childhood care provider and students self-selected their participation. It was a requirement of participation that they held a Diploma in Early Childhood Education from New Zealand Tertiary College and were currently teaching in an early childhood centre in New Zealand.

Prior to commencing the courses students completed an orientation course titled *Learning Online*. This orientation course served two purposes. First, to introduce students to the web-enhanced distance learning platform, and secondly, to equip them with the technical and study skills required for successful learning in this mode. The course was based upon the book “The ecelearn guide to learning online” (Donohue & Fox, 2007). Students had access to the *Learning Online* course for a week, during which time they completed set tasks, read course material and had the opportunity to take part in a discussion forum.



This article discusses some of the data gathered at three different points of time throughout the duration of the pilot project. Three questionnaires were administered, one prior to students commencing their studies, one at completion of the *Learning Online* course, and finally, at the completion of their studies.

Participants

Prior to commencing any of their web-enhanced studies, students were asked a number of questions through an online questionnaire. These questions related to demographic information, and also gauged students' computer skill levels and attitudes. Most of the 11 students were female ($n = 10$), with a mean age of 30 years (range 22 – 55 years). The majority of the students were of New Zealand European/Pakeha ethnic background ($n = 8$) and the sample also included 1 Polynesian, 1 South African and 1 British student. Although some students indicated that they had previous experience as a distance learner ($n = 4$, 36.3%), most students indicated that they had not previously participated in distance learning ($n = 7$, 63.6%). None of the students had previously participated in any online/web-enhanced studies. This sample of students, although small, was deemed to be representative (e.g., age, gender, ethnicity, computer skill level), of early childhood student teachers at New Zealand Tertiary College.

Participants' computer skills prior to course commencement

Computers in general were used daily by 63.6% of students ($n = 7$), 2 to 3 times per week by 18.2% of students ($n = 2$), weekly by 1 student and monthly by 1 student (9.1%). The Internet was used daily by the majority of the students ($n = 6$, 54.5%), 2 to 3 times per week by 18.2% of students ($n = 2$), weekly by another 18.2% of students ($n = 2$) and once a month by 9.1% of students ($n = 1$). Email was used either daily ($n = 5$, 45.5%) or weekly ($n = 4$, 36.4%) by most students. One student reported monthly usage of email, with another student reporting never having used email. Participating students rated their computer proficiency on a number of different levels including their overall computer proficiency, basic computer skills, basic word processing skills, editing skills, web skills and email skills. Most students (81.8%, $n = 9$) rated their overall computer proficiency as average, with 1 student rating their computer proficiency as at a beginner's level, and another student rating their computer skills at an expert level. All students either agreed ($n = 5$, 45.5%) or strongly agreed ($n = 6$, 54.5%) with the statement that they were excited about the idea of web-enhanced learning. All students also agreed ($n = 3$, 27.3%) or strongly agreed ($n = 8$, 72.7%) that they were willing to learn new technology skills.

Procedure

Students were given information letters detailing their involvement in the research project, after which they completed consent forms. This study was approved by the New Zealand Tertiary College Research Ethics Committee.



The pre-course commencement questionnaire asked a variety of rating questions and open-ended questions, and gathered demographic information. The questionnaire was administered online in the learning management system that is used to deliver the course content. Students then participated in the Learning Online course. This course was specifically designed to provide students with an orientation to the learning platform and to practice the skills necessary to be able to complete online studies. The course duration was one week, although in keeping with the asynchronous format the amount of time the students could spend online was not scheduled. Accompanying the course was a discussion forum, which allowed students to practice interacting with each other and lecturers through the discussion forum.

At the end of the Learning Online course students were given a course evaluation which involved 11 questions. The course evaluation questionnaire was developed for the purpose of the study by the researchers (see Appendix). The questions asked were designed to gather information regarding students' skill levels and experiences of the Learning Online course. The majority of questions asked students to what extent they agreed with a number of statements. Students were also asked to comment on the advantages and disadvantages of web-enhanced learning.

Following the completion of all their degree courses, students were again given a questionnaire. Some of these questions required students to reflect on the value of the Learning Online course having experienced web-enhanced learning over a period of 6 months.

Data analysis

Considering the sample size and the researchers' intent to study student participants' perceptions, the predominantly qualitative analysis of data was deemed appropriate (McMillan, 2004). Qualitative data was analyzed using thematic analysis. A theme is construed as a pattern found in the qualitative information that describes and organises the information, although it can also interpret parts of the data under investigation (Boyatzis, 1998). To this extent thematic analysis was deemed an appropriate methodology to tease out core themes for the perceived advantages and disadvantages of web-enhanced learning. The coding process followed a three-step progression, and involved (a) developing concepts and categories to organize data into a framework of ideas, (b) comparing data instances, cases and categories for similarities and differences, and (c) unifying key themes (Boyatzis, 1998). Both researchers read, and re-read participant responses to only extract the most relevant key themes. Participant responses are used to illustrate these key themes. Quantitative data was analyzed by summing participant responses, and is illustrated in percentage totals to indicate the number of participants who agreed with the statements.

Results

Following the *Learning Online* course students completed course evaluations. Students were asked to identify to which extent they agreed (agree, neutral, disagree) with a number of statements. For the most part students agreed with the statements (as indicated in figure 1). None of the



students disagreed with any of the statements, although some were neutral to some of the statements.

- **Good introduction to ecelearn:** ecelearn is a custom-built learning management system designed to deliver early childhood teacher training courses at New Zealand Tertiary College (see www.ecelearn.com). Almost all students (91%, $n = 10$) felt that the introductory course gave them a good introduction to the ecelearn online learning environment. Students also commented that they found the online learning course helpful and that they have learned a lot from the course. One student noted that:

"The online task was very helpful, particularly navigating around the ecelearn website!"

A number of students commented that they found the online environment easy to navigate and use. For example, one student commented that:

"I'm finding the online environment really easy to get around and access. All parts are clear and easy to understand their purpose"

- **Improved computer skills:** Almost all students (91%, $n = 10$) indicated that they feel that they have improved their computer skills and awareness of the ecelearn online learning environment through participating in the introductory course.
- **Improved confidence using computers:** Most students (82%, $n = 9$) indicated that their confidence level in using the computer, through using the ecelearn online learning environment, has improved. Two students were neutral to this statement.
- **Compatible learning style:** As indicated in figure 1 all students agreed that the online course was compatible with their style of learning. As a matter of interest, the online learning environment was also noted to particularly suit one student who commented that the online format means that:

"shy students like myself can feel more comfortable, online environments can be less intimidating"

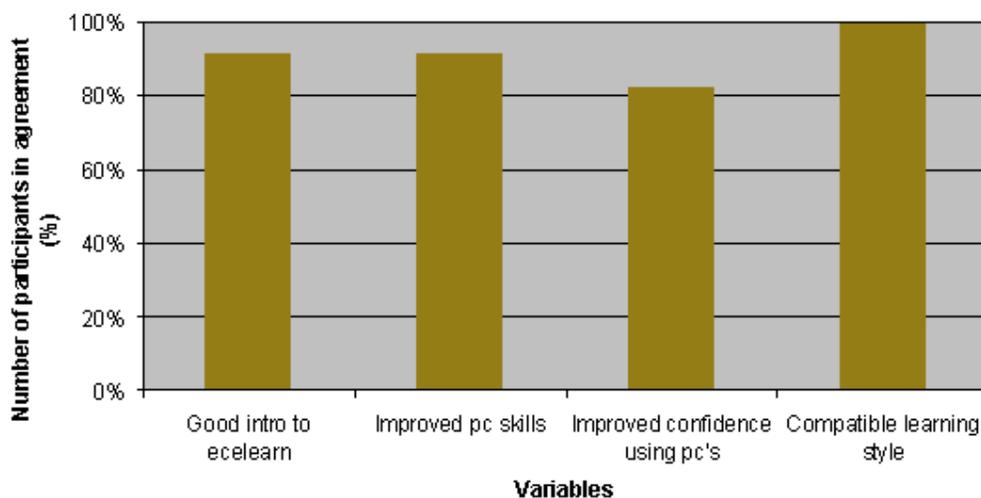




Figure 1: Percentage of students who agreed with statements (N = 11)

Students were also asked to comment on the advantages and disadvantages which they perceived of online learning. All student responses were taken into account from which a number of key themes arose. Student responses are quoted verbatim to illustrate key themes.

Advantages of web-enhanced learning:

A number of key themes were identified from student responses. Flexibility, convenience and improved computer skills were acknowledged as the greatest advantages of web-enhanced learning.

- Seven students noted flexibility and the ability to work at their own pace as the greatest advantage of online learning. For example, one student noted:

"I can work online to my own schedule that fits around my work and other commitments".

- Five students noted the convenience of online learning (e.g., studying from home) as its greatest advantage. For example, one student commented that the greatest advantage of the online format for her is that she is able to:

"study at home and at anytime of the day or night".

- Another five students also noted that through online learning their computers skills (in particular navigational skills) will be enhanced. For example, one student noted that:

"this is also a new way for me to learn and expand my computer knowledge".

- Lecturer support has also been identified as an integral part of student's learning by a number of students. For example, one student commented that:

"The quick and motivating response from the lecturers has kept the momentum flowing... Much more one-on-one support than I experienced in both field based and distance learning courses in the past".

Disadvantages of online learning:

Two main disadvantages were perceived by a number of students, including a lack of direct contact with lecturers and time management issues.

- Three students commented on the lack of direct contact with lecturers which occur as a result of online learning. For example, one student noted that:



“I would like to verbally reflect with others when I am not quite sure of something, and will now need to email these and wait for replies”.

- Three students also noted they need to carefully manage their time and schedule their online learning. One student commented:

“actually having to sit down and work out a time frame to fit in my study as when I was field based I would usually do my assignments just before the due date”.

Final comments at completion of all degree courses

At completion of their web-enhanced studies (6 months after completing the *Learning Online* course) almost all the students indicated that they found the *Learning Online* course very useful in preparing them for their web-enhanced studies. In addition, students commented that they would recommend other students to also take the time to complete the orientation course, as it meant that they were a lot more familiar with the platform and could engage with the online content to a much greater extent. For example, one student commented that:

“An important factor is the reading of the introduction to online study as this forms the basis for learning how to use the web-enhanced mode to assist you in your studies”.

Finally, it should also be noted that the ongoing usefulness of the orientation course in supporting students throughout their studies was identified by students. In particular, having a manual to guide them and to reflect back upon was very useful for students. One student commented that:

“The ecelearn computer guide is a great tool to use throughout the course”.

Discussion

Students indicated that they found the orientation course useful in preparing them for their studies, and also in assisting them throughout their studies. Students also self-reported that they were now familiar with ecelearn, the learning management system used at New Zealand Tertiary College. Although students were asked to identify perceived advantages and disadvantages of the web-enhanced mode, it should be noted that students were less forthcoming in commenting on disadvantages. This may indicate that there was a perception of more advantages to web-enhanced distance learning, than disadvantages.

Student skills, expectations and attitudes towards web-enhanced distance learning

El Mansour and Mupinga (2007) reported that students need to have the technical competencies to succeed in the online learning environment. Prior



to participating in the course most students noted that their computer skills were average and that they were willing to learn new technology skills. According to Wu, Tsay, Chen and Wu (2006) the Technology Acceptance Model is useful when attempting to explain computer behavior. Wu et al. (2006) note that this model builds on Ajzen and Fishbein's (1997) theory of reasoned action. This theory implies that "beliefs could influence attitudes, which lead to intentions to use and finally to actual usage behaviors" (p. 288). Student participants' willingness to learn new technology skills influenced their intentions to use their computers, which in turn influenced their computer behaviour during the *Learning Online* course. As such, it was satisfying to find that student participants self-reported that their confidence in using computers and their computer skills have improved, as a result of this course. This is similar to the findings of McVay Lynch (2001) who found that students who had completed an online orientation course not only had a positive attitude but all demonstrated a significant (89%) increase in technology skills. Students' technical skills have also been linked to the manner in which they engage with technology and the online learning environment. Previous research on preparatory courses centred around enhancing technology skills, have found that students accessed course material with less anxiety and frustration, and this also bodes well for their online interactions and their overall course satisfaction (e.g., Erlich, Erlich-Philip, & Gal-Ezer, 2005; Pillay, Irving, & Tones, 2007). Drennan et al., (2005) also found that a positive attitude toward innovation meant that students viewed the new technology more positively. Considering the Technology Acceptance Model (Wu et al., 2006), students' positive attitude towards technology indicated a positive approach to their intention to the use of new technology presented in the web-enhanced mode during their studies.

Flexibility

Ryan (2001) observes that most students select online learning because of its convenience and flexibility. One key advantage about web-enhanced learning that stood out for student participants was the flexibility of the web-enhanced mode. Students could participate in the web-enhanced course at a time that suited their lifestyle. They could also participate in the course at a time and place that was most convenient for them. Eliminating time and space barriers, and thus not being bound by class schedules, has been noted as some of the advantages of online learning (e.g., El Mansour & Mupinga, 2007; Hosie et al., 2005). All the students involved in the web-enhanced program were working at least part time, with the majority of the students in full time employment. Perez Cereijo (2006) in a study of 96 graduate level students found that full time workers prefer flexible asynchronous online courses, due to the fact that they have a number of issues that affect their schedules, including work hours, family commitments and distance from tertiary institutions.

Lecturer support

A small group of students (3) did comment that the lack of direct contact with lecturers could be perceived as a disadvantage of web-enhanced study. However, other students indicated that the quick and motivating responses of lecturers contributed to their learning. As for a lack of direct contact with lecturers, Donohue (2002) found that students who prefer face-to-face



teaching see distance learning as “high tech/no touch, and are skeptical about its value as an educational and social experience” (p. 22). Levine (2005) challenges the expectation that face-to-face teaching creates better relationships and learning experiences by stating, “regardless of how physically close instructors may be to learners, unless they work to facilitate relationships they won’t happen by themselves” (p. 19). This implies that the quality of relationships is important and draws attention to two factors: First, platform design which allows for effective relationship building; and second, lecturers’ professional development in relationship building skills for an online environment. In the pilot project a range of ways to facilitate learner-lecturer contact were put in place for students through the web-enhanced mode. These included an e-mail option within the platform (eMessages), discussion forums, phone contact, or students could request a face-to-face meeting. As current results are contradictory, continuing research is being conducted to determine whether there is in fact a lack of direct lecturer contact, or whether these are just initial perceptions that students have prior to experiencing web-enhanced learning for the first time.

eLearning guidelines

Determining the quality of online modes of study is an area of continued debate in the academic world. The New Zealand eLearning guidelines have been developed to assist the tertiary sector in developing good practice in eLearning, and to provide a basis for evaluation of eLearning materials and resources (Milne & Suddaby, 2005). The entire web-enhanced program was developed in keeping with the eLearning guidelines. However, three specific guidelines relate to this study, and are related to the *Learning Online* course:

1. SO5 – do staff introduce information and technical skills to students?
2. SO8 – do students get guidance on study skills for the eLearning environment?
3. TD3 – Does the eLearning encourage a realistic progression towards self direction? Does it recognise varied starting points in levels of confidence and motivation?
(Milne & Suddaby, 2005, p. 13 & 26)

The first two guidelines are clearly addressed by the *Learning Online* orientation course. Students were given clear guidance in the form of a technical guidebook (The ecelearn guide to learning online) and through the *Learning Online* course which included a series of set tasks for students to complete. In addition, students were given free phone access to a New Zealand Tertiary College Information Technology helpdesk, and their lecturers. The last guideline would appear to be met by the *Learning Online* course. This orientation course was set at a very basic level to cater for students with limited technology skills. Both at completion of the *Learning Online* course, and at completion of the web-enhanced program (6 months later) most students indicated that they found the *Learning Online* course very useful in preparing them for their web-enhanced studies.

Conclusion

The purpose of the *Learning Online* course was to prepare students for their web-enhanced studies. Reports from students have shown that despite some perceived disadvantaged to web-enhanced learning, students were



able to successfully complete the *Learning Online* course and reported greater computer competency at the completion of the course. Consistent with the findings of the literature, the success of the orientation course contributed to positive student attitudes about web-enhanced distance learning, and an appreciation of the flexibility this mode of study affords to students. Based on student perceptions this orientation course addressed best practice as indicated in the New Zealand eLearning guidelines.

This study had been conducted on a small sample of students, therefore the findings can only be said to be true for this population. Further research to determine the applicability of these findings to a wider population, in particular to other early childhood education providers, is recommended. In addition, as a result of using an Internet survey no observation of the participants was possible, the setting was not controlled, (Buchanan, 2000) and there might have been some task misunderstanding, although none were reported. The pilot program is continuing to track students' experiences as they continue their web-enhanced distance learning. This will be used to determine directions for future research. One of the mitigating factors that can impact on the success of web-enhanced learning is the skills of the academic staff conducting the teaching experiences. Further investigation of the expectations and experiences of academic staff, as they facilitate teaching and learning in this mode, would be beneficial to get an overall picture to the success of web-enhanced distance learning.

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Appendix

Course evaluation

Well done! Your first course, Learning Online is almost complete. Please complete the course evaluation below. We look forward to receiving your feedback.

Please click on your response to the following statements.

1. I found this online introduction course was compatible with my learning style

Disagree
 Unsure
 Agree

2. I liked the flexibility of not having to come to a college campus or designated site

Disagree
 Unsure
 Agree

3. I liked the flexibility of working on this class 24 hours, 7 days a week, or as my schedule allowed rather than coming to campus for a scheduled class.

Disagree
 Unsure
 Agree

4. I feel I saved money by this method of delivery (transportation, petrol, parking, child care etc)

Disagree
 Unsure
 Agree

5. I feel the course gave me a good introduction to the ecelearn online learning environment

Disagree
 Unsure
 Agree



6. I feel the course was well organised and clear to follow

- Disagree**
- Unsure**
- Agree**

7. I feel I have improved my computer skills and awareness of the ecelearn online learning environment

- Disagree**
- Unsure**
- Agree**

8. I feel I have improved my confidence level with using the computer by using the ecelearn online learning environment

- Disagree**
- Unsure**
- Agree**

9. What do you see is the greatest advantage for you, in taking a course in the online format?

10. What do you see as the greatest disadvantage for you, in taking a course in the online format?

11. Other comments