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Nursing Students' Experiences of Using Adobe Connect in a First-year Professional Nursing Course

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Abstract. This paper reports the survey results of first-year Bachelor of Nursing students' (n=88) experiences using Adobe Connect in a Professional Nursing course. Data were analysed using descriptive statistics and themes were coded from responses to open-ended survey questions. Quantitative data affirmed the learning and teaching benefits of using Adobe Connect and identified areas for improvement. Qualitative data indicated that accessing and using Adobe Connect from the comfort of home was greatly appreciated. Negative aspects related to feeling a lack of involvement, and poor digital audio and visual quality, mainly due to Internet delivery problems. These findings indicate that this technology suits the learning needs of first-year students. Used in combination with a limited number of face-to-face tutorials, students have the 'best of both worlds' – home-based, self-paced learning, access to recorded lectures, adequate peer/teacher contact time and successful course results.

Keywords: Adobe Connect; nursing education; e-learning; distance teaching.

1. Introduction

This study formed part of an annual evaluation of teaching methods for first-year Bachelor of Nursing (BN) students. The specific aims were 1) to enhance our understanding of students' experiences and perceptions of learning using Adobe Connect in a foundational *Professional Nursing* course, and 2) to use the findings to improve our teaching practice using web-based video conferencing technology.

1.1 Background

The first year of the BN degree programme at Otago Polytechnic has six theory and two clinical practice courses. Theory courses (*Bioscience, Pharmacology, Sociology, Psychology, Theory for Practice, Professional Nursing: Theory and Research 1*) are taught using a blended learning approach. Teaching methods include traditional didactic lectures, small group tutorials and a range of directed and self-directed online learning activities. Clinical courses, (*Medical and Surgical Nursing*) are taught and nursing skills are practiced in laboratories and simulation suites before students are placed in (hospital wards, community centres and aged residential care facilities) to further develop their skills. This is done under the guidance of a Registered Nurse preceptor and a clinical lecturer. All nursing students are campus-based learners and course attendance is compulsory.

1.2 Teaching Professional Nursing

The *Professional Nursing: Theory and Research 1* (*Professional Nursing 1*) introduces students to the nursing's historical foundation, legal, ethical and governance frameworks, and principles of evidence-based research. To meet course-learning outcomes students have a weekly lecture and are provided with a range of online learning activities and video resources on 'Moodle', the institution's e-learning platform. Regular staff-student communication is facilitated through institutional email and the Moodle 'News Forum' function.

Three years ago, an academic lecturer with a young family living in a remote location and expertise in the subject offered to teach the *Professional Nursing 1* course from home using web-conferring software technology. 'Adobe Connect' was selected, enabling students to use their own devices (computer, laptop and smart phones) and to log into live-streamed broadcast lectures. This facilitates lecturer sharing PowerPoint and other teaching resources on-screen with students, closely resembling a face-to-face classroom environment.

In the first year of using Adobe Connect (2015), students could join the lecture using their personal computer, or attend a live broadcast in a campus classroom with other students supported by an academic staff member. However, due to poor student attendance the classroom option was dropped (numbers fell to 10 in the third week). Small group tutorials (n=26-28) were later added in response to student's request for more face-to-face learning support. Tutorials were facilitated by the distance lecturer (who travelled to campus) and when required was assisted by other academic staff. In 2016, lectures were recorded and links posted on Moodle. Changes were made in response to students missing lectures due to illness, part-time work and family commitments. These decisions are supported by research finding that recordings increased the student's learning flexibility (O'Neil, Singh & O'Donoghue, 2004).

1.3 E-learning and the use of Adobe Connect in nursing education

The provision of online learning options including e-learning is used in nursing curricula in a number of countries including Australia, Canada, Greece, Ireland, New Zealand, UK and USA (Button, Harrington & Belan, 2014). Online education involves Internet delivered courses on which students can participate from any number of locations, usually their homes. Materials are delivered synchronously using web conferencing software such as 'Skype', 'Elluminate', or 'Adobe Connect', or asynchronously using Learning Management Systems using 'Blackboard', 'Moodle', or a combination of both (Torun, 2013). Delivery requires varied teaching methodologies and levels of interaction between students, content and technology to meet learning preferences of the diverse groups of learners. In nursing education Adobe Connect is used for teaching distance students or online courses (Button et al., 2014). It is also generally preferred for teaching smaller and/or postgraduate groups where participants use personal headsets, microphones and 'hand-raising' icons to speak to others, and can work collaboratively using the on-screen whiteboard function (Carter & Heale, 2010; Greenberg, 2004).

There are many advantages for students associated with e-learning technologies, among which, the most often cited, is the increased flexibility offered by the online learning environment and the ability for students to be self-paced when studying (Button, et al., 2014; Farrell, Cubit, Bobrowski & Salmon, 2007; Hampton, Fachie & Moser, 2017). In one study, nursing students reported that learning in the online environment was deeper than in the classroom (Mitchell, Ryan, Carson & McCann, 2007). In a second study, connecting with peers and getting to know each other outside of the classroom were important features of the online learning environment (Kelly, Lyng, McGrath & Cannon, 2009). E-learning and online courses also provide equal access to and equivalent learning opportunities for those in remote areas (Carter & Heale, 2010; Wood, 2016).

Negative aspects relate to increased levels of anxiety and include a lack of skill when using digital devices, insufficient technical support and time wasted when computer systems do not work properly (Creedy, Mitchell, Seton-Sykes, Cooke, Patterson, 2007; Levett-Jones, Kenny, Van der Riet, Hazelton & Kable, et al., 2009). Other technical problems, such as computer screens freezing, online connections dropping out and slow Internet broadband speed are other frustrating impediments to learning (Bond, 2009; Deltsidou, Voltyraki, Mastrogiannis & Noula, 2010). Educators thus generally favour using a blended learning approach including online and face-to-face teaching methods (Englehart, 2015). In todays' educational landscape, producing well-designed courses using a mix of traditional and online teaching technologies enrich student's learning experiences and generate re-usable and sustainable teaching resources.

2. Methods

2.1 Research purpose

This study formed part of an evaluation of first-year teaching because Adobe Connect was newly adopted as a teaching and learning technology. The research was based on end-of-year formal course evaluation feedback, indicating that while students were highly satisfied (M=4.84, on a scale of 1 = *strongly disagree* though to 6 = *strongly agree*) with *Professional Nursing*, they were somewhat dissatisfied with the technical aspects of using Adobe Connect.

2.1 Research questions

This article addresses three research questions.

1. What is the student perspective of using Adobe Connect?
2. What impact does Adobe Connect have on student's learning experience?
3. What can academic staff do to improve their teaching practice when using Adobe Connect?

2.2 Study setting, participants, and ethical approval

The study was conducted in a New Zealand School of Nursing. First-year students (N=117) enrolled in *Professional Nursing 1* were invited to participate. The survey was approved by the Research Ethics Committee (OPREC 2016-693) and was advertised on the first-year Moodle site. Students were made aware that participating was voluntary, the survey was not related to course assessment and that their responses would remain confidential. Participants gave informed consent and no demographic or personal data were requested. Students accessed the online survey through a secured institutional course portal.

2.3 Research instrument

The research instrument comprised 15 forced-choice and 5 open-ended questions. Questions and items were derived from formal student feedback and research on undergraduate's experiences of using online technology (Milne, Skinner & Baird, 2014). Different response indicators were used for the forced-choice responses but for all statements, 1 = *the lowest level*, and 5 = *the highest level* of agreement or satisfaction. Open-ended questions explored students' experiences of using Adobe Connect. The survey was piloted before going live in the last week of November and closed two weeks later.

2.4 Study sample

Research participants were first-year nursing students (N=88, 75.2%). De-identified data were returned by the institution's research office as a computer generated summary report of simple descriptive statistics. Responses to the open-ended questions were manually coded to identify common themes. Data

were analysed when all students had completed their 2016 academic assessments.

3. Results

3.1 Online survey quantitative results

Nearly all respondents used a desktop (91%) or lap top computer (9%) when accessing the online classroom. Most connected from home (87%), the remainder logged on from the institution's library (12%) or student halls of residence (1%). The majority (75%) easily accessed the Adobe Connect classroom and few experienced Internet connectivity issues. Student comments indicated that the technology was "*simple to use*" and "*the instruction on how to use it, very clear*". Less than half (43%) felt they should have had more technical support before the course started.

Two thirds (66%) had problems hearing the lecture yet only 4% rated the audio quality as 'terrible' or 'poor'. Web camera picture quality was highly rated (M=3.84) but most (79%) had experienced delay or Internet drag that interfered with the presentation quality of the lecture. The majority (81.5%) favoured a lecture time of at least 30 minutes and most (58%) felt it was easy to concentrate for the current 50-minute lecture time. Nearly all (94%) accessed the post-lecture recordings. Data relating to accessing and using the online classroom are presented in Table 1 and show that mean scores that ranged from 2.49-3.84. The higher the mean the more students agreed with the statement.

Table 1: Descriptive statistics

Item	Mean
I feel confident in accessing the online classroom	3.43
I have enough support to be able to use the technology	3.36
I feel supported in my own learning needs	3.07
I am able to engage with the learning process when using Adobe Connect	2.96
I feel that I belong to a community of online learners	2.94
I feel that I was able to develop a relationship with the lecturer delivering the content via Adobe Connect	2.81
I was more likely to ask questions in the 'chat box' than in a classroom setting	2.49

These data show that while students were confident in assessing and using the technology and online classroom, they did not feel strongly that they belonged to a community of online learners or that they had a relationship with the lecturer. Also evident was a low preference for using the 'chat box' function to ask questions during the lecture.

3.2 Online survey qualitative results

The responses to the open-ended questions were manually coded. Table 2 shows the questions, number of responses and emergent themes. Results are presented under the relevant headings and are supported by direct quotations in italic script.

Table 2: Open-ended question themes: advantage and disadvantages of Adobe Connect

Question	Emergent themes
What is the **best thing** about learning using Adobe Connect software? (n=86)	• Convenience and flexibility; access, place and time (39) • Revise, re watch, better supports our learning (21) • Can learn from home, look things up, no distractions (16) • Time to think, can pause, easier to take notes and focus (6) • Easy to ask questions (4)
What is the **worst thing** about learning using Adobe Connect software? (n= 43)	• Poor sound quality (11) • Digital lag/visual breakup (9) • Don't like/prefer face-to-face (6) • Impersonal, hard to connect with the teacher (6) • Lecturer misses a question (5) • Lack of connection to group (3)

3.3. Advantages of using Adobe Connect

The question 'what was the best thing about learning using Adobe Connect?' yielded 86 comments. Thirty-nine respondents reported that the main advantage of using Adobe Connect related to its convenience and flexibility. Students perceived it as "*a different way to learn rather than sitting in the classroom*" and they appreciated "*being able to watch and access the lecture anywhere, anytime*". Comments including "*being in the comfort of my own home; learning from home; sitting at home with no distractions*" suggest that home-based learning, rather than travelling to or being on campus, was highly valued. Having the recorded lectures "*to watch later, and take notes without rushing*" and "*going back and checking information to support learning*" was also greatly appreciated.

3. 4 Disadvantages

Fewer disadvantages were reported; 42 responses yielded seven themes. The main problem related to technical delivery and reception, i.e., poor sound quality, digital lag and picture break-up. The following comment summed up these frustrations:

> "*For some of the lectures, there was a blank screen. Audio has been a big problem. Sometimes the connection isn't very good and we get audio cuts and miss information*".

Many students (n=9) voiced a preference for face-to-face teaching and "*more opportunity to connect with the lecturer*". Another comment that "*sometimes the lecturer would miss a question in the chat box and not answer it*" indicated that a lack of real-time connectivity and a missing response was a disadvantage of the virtual classroom. Table 3 shows responses to the remaining open-ended questions.

Table 3: Open-ended question themes: Tutorials, learning support, recorded lectures

Question	Emergent themes
Describe how you found the additional tutorials in this course (n=33).	• Excellent, helped to tie the information together (23) • Really helpful, this is where most of my learning came from (6) • Helped to summarise (3)
Learning via Adobe Connect requires a high level of self-directed learning skills. What could be done to support your learning? (n=17)	• More face-to-face time (9) • A weekly tutorial (6) • Provide a lecture room for students to watch it together (2)
Why did you access the recorded lectures? (n=50)	• Revision, clarification (25) • To check and go over things (10) • Hadn't attended the live lecture (9) • I worked, forgot or was sick (7)

3. 5 Tutorials and learning support

Regarding tutorials, three very positive themes were identified from 33 responses. Students greatly valued tutorials with the distance lecturer, finding them "*amazing; awesome, extremely beneficial*" and "*really helpful*". The question '*what could be done to support self-directed learning?'* yielded three themes from 17 responses. Students wanted more face-to-face contact time, weekly tutorials and a room to watch the lecture together.

3.6 Recorded lectures

Quantitative data showed that the majority (94%) had listened to the recorded lectures. The average number of times students accessed these recordings was five and the range, 1-10. As expected, these responses identified that students used recordings primarily for "*revision and clarification*" and "*when a lecture had been missed*" for a range of reasons such as illness.

4. Discussion

From the student perspective, these results confirm the value of using Adobe Connect, especially as part of a blended teaching and e-learning approach. Predominantly 'Generation Z' learners, i.e. those born in 1995 and aged 21 or

younger (Hampton & Keys, 2017), these net savvy students had no difficulty using web-conferencing software or concentrating for the 50-minute lecture time.

The benefits of e-learning for students are well known: providing greater time flexibility and the ability to be self-paced (Farrell, et al., 2007; Hampton, et al., 2017). For these respondents, the greatest perceived benefit of "*accessing it anywhere and from the comfort of my own home*" is critical. This aligned with Milne et al.'s, (2014) findings that second-year student midwives' preferred using video conferencing because it was home-based learning. Furthermore, enjoying time flexibility for academic study and learning "*from the comfort of my own home*" bears testimony to the high number of students who have part-time work or family commitments and find travelling to campus expensive and/or inconvenient. It also enables learners more freedom to multi-task whilst at home i.e., to get food and drink, and to deal with problems and chores, as was found in Cappiccie and Desrosiers' (2011) study of social work students. Flexibility also helps those who miss attending a class because of illness or personal factors (Button, et al., 2014).

Overall, the perceived advantages of using web-conferencing software were more numerous than the disadvantages. Students appreciate using videotaped lectures to help them understand difficult concepts and if they have missed a class. Having a recorded lecture is particularly valued for revision purposes since this feature is not usually available at the conclusion of traditional face-to-face classes. Furthermore, contemporary research showing a positive correlation between viewing recorded lectures and student's final grades, and a greater reliance on recordings by females and older students (Heijstra & Sigurõardóttir, 2017) is significant for nursing students who are predominantly female.

Negative aspects of e-learning relate to technical problems (Englehart, 2015), increased levels of anxiety when using computers (Deltsidou, et al., 2010), poor information communication technology user skills, inadequate technical support and the time wasted when computer applications do not work properly (Bond, 2009; Creedy, et al., 2007).
This study found that while technical and digital transmission difficulties were commonly experienced they were not a major deterrent to learning, especially when backed-up by recorded lectures. Though anxiety related to using web-based technology was not reported, students felt a low level of belonging to a community of learners. The 'chat box' function also did not provide the desired level of student teacher interaction. However, given the large number of online participants (usually 75% of the class logged in for the live-stream lecture) it is easy to understand why students felt this way. The campus face-to-face tutorials helped to fill this void and were greatly valued, one student regarding them as "*the icing on the cake*", and another, a "*privilege to attend*". It seemed that providing only end-of-module tutorials was a prudent educational decision, as it encourages greater self-directed learning, independence and enhances student engagement with online resources.

5. Lessons for educators

Many educators are sceptical that online education is as effective as conventional face-to-face teaching and some regard the digital technology as challenging and impersonal (Praechter & Maier, 2010). Nursing educators can be assured however, that students like learning using Adobe Connect, particularly the flexibility provided by live-streaming lectures and the convenience of using their own devices, mainly from home. Recorded sessions help students to revise and consolidate material, fostering deeper learning found) in comparable online learning environments (Mitchell, et al., 2007). To improve their teaching practice when using Adobe Connect, academic staff should be encouraged and enabled to attend appropriate training and continuing education sessions. Technical support is essential for all staff and it is vital to have a contact person or service for technology problems, so that students may be referred to institutional support services rather than the lecturer attempting to solve problems during limited class time.

In the *Professional Nursing 1* course students are required to engage with complex material and develop an understanding of abstract concepts, research principles and practice. Using Adobe Connect supported by end-of-module tutorials proved to be an effective and efficient way to teach and for students to learn as the course had a 98% pass rate. As an outcome of the successful implementation of Adobe Connect in *Professional Nursing 1*, it has been adopted for use in other first-year BN courses; typically to design and package learning resources into topic-based modules.

In this study a distance lecturer used Adobe Connect to teach a large campus-based class, whereas this technology is most often used by a campus based-lecturer to teach distance students. How then to best support the distance lecturer? Wood (2016, p. 256) recently noted, "little has been written about faculty working at a distance" emphasising that the role required thoughtful and diligent preparation with extra attention being paid to equipment needs, support and strategies for ensuring continued engagement. The final issue relates to students themselves becoming 'distance learners' as an outcome of the convenience of staying at home. Not regularly being on campus results in a lack of interaction with peers and missed opportunities to build communication and social skills. Social isolation of young people is concerning in the age of increased digital connectivity that sometimes leads to over-reliance and over-use of digital devices: a phenomenon recently referred to as the Generation Z mobile phone addiction (Ozkan & Solmaz, 2015). However, requests for more face-to-face tutorials indicated that students were reluctant to fully adopt online learning.

6. Conclusion

In a time of rising costs, with many nursing students working part-time to support their studies, web-based online learning makes sense. E-learning can transform the traditional paradigm of teaching and learning by providing

flexibility and opportunities for educators to innovate and deliver courses to suit disparate groups of learners. However, to maximise e-learning's potential, educators (and distance teachers in particular) require training in course design and ongoing communication support. Similarly, students need instruction, support and adequate opportunities for social engagement with campus-based peers. First-year BN students liked using Adobe Connect and were confident in accessing and using this technology. Poor sound quality and digital lag were widely reported, yet successful learning was not impeded. Access to recorded lectures and a backed up by a limited number of face-to-face tutorials were most appreciated providing students with the 'best of both worlds' in todays' challenging educational environment.

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