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**PEER LEARNING A PEDAGOGICAL APPROACH TO ENHANCE ONLINE LEARNING: A QUALITATIVE EXPLORATION** (Word Count 4619 total)

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**Background:** Flexible online programs are becoming increasingly popular method of education for students, allowing them to complete programs in their own time and cater for lifestyle differences. A mixture of delivery modes is one way which allows for enhanced learning. Peer learning is another method of learning which is shown to foster collaboration and prepare healthcare students for their future careers. This paper reports on a project to combine peer and online learning to teach pharmacology to nursing students.

**Objectives:** To explore undergraduate nursing student opinions of working in peer groups for online learning sessions in a pharmacology course.

**Design:** A qualitative study utilising a self-reported questionnaire.

**Setting:** A rural campus of an Australian university.

**Participants:** Second year nursing students enrolled in a Bachelor of Nursing Program.

**Methods:** A hard copy questionnaire was distributed to all students who attended the final semester lecture for the course. Content analysis of open-ended survey questions was used to identify themes in the written data.

**Results:** Of the 61 students enrolled in the nursing subject, 35 students chose to complete the survey (57%). Students reported a mixed view of the benefits and disadvantages of peer online learning. Sixty six percent (66%) of students liked peer online learning, whilst 29% disliked it and 6% were undecided. Convenience and ease of completion were reported as the most common reason to like peer online learning, whilst Information Technology issues, communication and non-preferred learning method were reasons for not liking peer online learning.

**Conclusion:** 'Peer online learning groups' acted as one further method to facilitate student learning experiences. Blending peer online learning with traditional face-to-face learning increases the variety of learning methods available to students to enhance their overall learning experience.

**Keywords:** (4-8) online learning, distance learning, peer-assisted learning, nursing education, peer group

## Introduction

Programs that are flexible and fit around pressing lifestyle factors are becoming increasingly popular for both students and academics (Currie, Biggam, Palmer, & Corcoran, 2012; Phillips, Forbes, & Duke, 2012). Academics are continually seeking methods to engage students in the learning process and online technology tends to be the current focus (Revere & Kovach, 2011). Educators are increasingly searching for alternative teaching approaches to improve student experiences, facilitate learning in an increasing digital age and provide cost effective programs (Brannagan et al., 2013; Colvin & Ashman, 2010).

The ability for students to learn online is not a new paradigm and the impact of online technologies has increased in many universities (Currie et al., 2012; Deakin University, 2011; Keppell, Suddaby, & Hard, 2011; Phillips et al., 2012). Several universities now promote flexible teaching programs using physical or virtual learning environments in their core commitments (Deakin University, 2011; Griffith University, 2013). Refining and improving online teaching approaches enable expanded opportunities for students to access education. Research into the use of online learning continues. Many Australian Learning and Teaching (ALT) government funded projects are based on technology and online teaching (Keppell et al., 2011). Varied perceptions of online teaching and learning exist for both the student and the academic (Keppell et al., 2011). Online learning is beneficial in providing accessibility for students and preparing them for a technologically rich environment, facilitating active participation, allowing shy students to participate, allowing for reflection, encouraging dialogue and communication between student, teachers and groups and providing records for the educator to assess the impact of learning (Hayward, 2004; Keppell et al., 2011). Some limitations include an absence of immediate feedback, technical infrastructure problems, lack of familiarity with computers, absence of non-verbal communication cues, lack of social presence, the amount of time required to prepare online materials and academic concerns surrounding the maintenance and sustainability of online programs or digital technologies (Hayward, 2004; Keppell et al., 2011).

Peer learning and mentoring in higher education have also been established as an effective learning strategy, assisting students to gain confidence in their own ability and taking control of their own learning (Keppell et al., 2011). Peer teaching uses the approach where students are involved in the teaching of other students and this concept is evident in nursing education literature over many years (McKenna & French, 2011). Peer assisted learning is growing internationally as a beneficial pedagogical strategy in health care and tertiary education (Brannagan et al., 2013; Williams, McKenna, French, & Dousek, 2012). Peer teaching has been shown to enhance student learning and

levels of self-efficacy (Brannagan et al., 2013). Within the nursing profession, peer teaching and learning extends beyond higher education and is one of the skills needed to productively work within a multi-disciplinary health care team. Although 'peer learning' is not a new pedagogy to nursing, its impact on online teaching continues to be developed, with ongoing research evaluating its effectiveness as an online learning strategy (Thomas, Rosewell, Kear, & Donelan, 2014).

As online learning and peer teaching are both valued pedagogical approaches to teaching, it was decided to combine the two approaches for one blended learning course. The implementation of peer learning groups was utilised to facilitate online learning for a nursing pharmacology course. This approach was adopted to replace a number of compulsory face-to-face tutorial sessions and a written group assessment task. All students enrolled in this course were allocated to small online peer learning groups manually based on the alphabetical listing of student names. Students were allocated in groups of 6-8 students so they could complete activities in group online forum sessions and assessment tasks. The Moodle course management system was utilised as the technology platform in which the students accessed the peer learning activities and other necessary course content. Each of the students remained in the same online working peer group to complete the assessment and tutorial tasks. Students could interact online to reflect and interpret the responses of other students whilst completing these activities

### **Objectives:**

The objective for this study was to examine students' opinions of the experience of peer group online learning.

### **Method:**

The research utilised a qualitative descriptive approach in order to understand students' experiences of peer online learning. Qualitative research involves a subjective systematic approach to exploring and describing life experiences enabling meaning to be attached to emerging themes (Burns & Grove, 2010). This approach was used as the researchers were aiming to explore and understand the experiences of the learner in using peer online learning, and not just the outcomes. Prior to the conduction of the research full ethics approval was obtained through the University ethics committee approval project number B15-109. Undergraduate nursing students enrolled in a second year pharmacology course from a rural campus school of nursing and midwifery were invited to participate in the survey. An open-ended survey of nursing students was conducted using a self-reporting questionnaire. The survey instrument included a four item anonymous questionnaire developed for the purpose of this study as shown below (Figure 1). The evaluation questions were

developed to specifically understand the student opinion of working online in peer groups. Students were asked specifically if they liked, disliked or both for each question and were provided space for writing individual comments for each question. The survey was reviewed by three experienced academics to determine appropriateness of content and the questionnaire format.

A hard copy of the questionnaire was distributed to all students who attended the final semester lecture. Students were invited to complete the questionnaire and leave the completed worksheet on their seats. No gender information or student identification was present on the questionnaire. The students remained anonymous. The lecturer left the lecture theatre to enable the students to complete the questionnaire in privacy or alternatively leave the classroom and choose not to participate in the research. This ensured there was no coercion by the lecturer toward students to complete the survey or influence the feedback provided on the questionnaire. The lecturer returned in 30 minutes to collect the questionnaires from an empty lecture theatre. Of the 61 students enrolled in the nursing subject 35 students chose to complete the questionnaire. Qualitative content analysis of open-ended survey questions was then adopted to evaluate this teaching approach.

**Insert Figure 1 here (Survey questions)**

#### **Data analysis**

Descriptive statistical analysis was undertaken on the results for each question. Content analysis of the open-ended survey questions was then undertaken to evaluate student comments and identify common patterns amongst the written responses (Chambers & Chiang, 2012; Moretti et al., 2011). Content analysis involves coding written words into categories and patterns to study responses from open-ended questions (Chambers & Chiang, 2012; Moretti et al., 2011). It has been used by numerous researchers as a method of deducing meaning from written comments (Chambers & Chiang, 2012; Eriksson, Westman, & Hamberg, 2006; Morasso et al., 2008; Moretti et al., 2011). Content analysis involves frequency count of words to identify common themes in the data. As student's comments often contained more than one code, the number of codes generated through the analysis was higher than the number of respondents. Individual pieces of written data were assigned codes to ascertain key points conveyed by the students and then clustered together into descriptive categories. Categories emerged inductively during data analysis and were not predetermined. The categories were then regrouped into themes which became the three final themes. Coding of the raw data was undertaken by two researchers individually. Discrepancies in coding were then discussed and consensus determined on which code to apply. Categories were ranked by determining the greatest level of agreement amongst participants. Percentage of

agreement was calculated by dividing the number of codes for a category by the total number of participants for the question and multiplying by 100 (Jacob, McKenna, & D'Amore, 2014).

## **Findings**

Of the 61 students enrolled in the pharmacology course, 57% (n=35) completed the questionnaire. The participants were mixed gender with age's ranging from 18-60 years; the majority (80%) were aged 25 years or less. All participants responded to the first question, which generated 79 codes (Table 1). Results identified that 66% of respondents (n=23) liked the online tutorials and found it helped with communication, group dynamics and time management.

All participants responded to the second question, generating 61 codes (Table 2). Similar to question one, 60% of respondents (n=21) enjoyed the online tutorials, although 31% (n=11) disliked them. Students identified peer online tutorials as an efficient learning strategy, although face-to-face learning was preferred for those who disliked online tutorials.

Categories for the first two questions were loosely grouped according to the common themes. The three themes identified were learning preferences, convenience and other issues.

### **Insert Table 1 here:**

#### *Learning Preferences*

Learning preferences refers to how useful students found online learning as a method of learning. This theme incorporated issues of communication between both student and lecturers, face to face learning preferences, group work and differences in learning strategies between students. There was mixed responses as to whether group work was beneficial to learning or not. Whilst many students felt they communicated better online, several students felt that online tutorials denied them the ability to communicate directly with the lecturer and engage in discussion. Other students felt that online discussion was a worthwhile learning method, and enjoyed the ability to have time to think about answers and complete learning tasks in their own time. The group selection and dynamics played a role in participants' responses. Many had a positive experience and found it enjoyable while others experienced conflict and felt it was unfair that everyone received the same mark regardless of difference in input into assignments and that having it fully online was problematic.

### *Convenience*

Convenience refers to issues of time, how easy online use was and work life balance. The students suggested that doing group assessment online allowed students flexibility. Students could choose their own time to do the group tasks and work at their own pace. Many felt that not having to organize a group meeting was a benefit of online learning as organizing face to face meetings took more time and effort. The online task allowed for independence in learning as students were able to progress at their own pace at a time convenient to them. The easiness of the online group assignment was reflected in many comments such as “the website flowed”, “was easy to use and find information” and “there was no need for time to organise group meetings”. Student comments reflected that most students found online group work mostly as a positive experience. Work life balance meant freedom for the student to complete task as and when they were able, while balancing the life issues of work, study and family responsibilities. Not having to travel to meet up with a group and go to university was seen as a positive as some had lengthy travel times.

### *Other Issues*

Other issues included reference to information technology (IT) problems and stress. There were varied comments regarding IT issues some good and others about the website interface and submission processes not being easy. It seems there needed to be better instruction on how to use the interface. Using online technologies meant that not everyone was online at the same time comments or posts were made. Students were not aware what others in the group had done until they were able to go online to the unit. Students requested a method of notification of group members when new comments or posts were submitted. One group bypassed the process by using Facebook to communicate. Social media can present issues of who is able to access information discussed. There were problems that emails were not communicated to the rest of the group. Some found the layout a bit tricky and hard to use. The group online work was seen as hard by some students as they preferred face to face learning. Stress was increased for some students as they were marked as a group and not all groups worked harmoniously or cohesively together – yet the same mark was given to all which some felt was unfair. IT issues created stress and concern about how groups communicated and allocated tasks – this was group dependent. Conflict within a group impacted on the student’s experience, while others had positive experience. The group experience was seen as random as this depends on the makeup of group.

The third question asked students whether there should be more peer online work in the nursing program. Whilst responses to the questions identified many similar themes to the first two

questions, (Table 3) another category of 'balance between teaching approaches' was identified. Students were able to identify the strengths and limitations of both methods of learning, face-to-face and online, and many felt that a combination of both was a better approach to learning than just one method alone.

#### **Insert Table 3 here:**

The fourth question was a closed ended question where students were asked to circle a response of which method of learning they preferred to undertake. The question was "Do you prefer face to face peer group sessions or online peer group sessions?" 31 students responded with 14 students (45%) preferring face-to-face group sessions, 7 students (23%) preferring only online group sessions and 10 (32%) students preferring a mix of face-to-face and online sessions. The variety in response from the students regarding learning preferences demonstrates that students have different learning preferences and needs, which require multiple teaching methods.

#### **Discussion**

This paper aimed to examine responses to survey questions in order to understand student views on participating in online tutorials and peer learning. Three main themes were revealed: Learning preferences; Convenience; and other issues

Learner preference can be seen as students favoring and wanting one particular mode of teaching and learning over another (Rughanathan, 2013). Learning preferences are important in providing a learning centered approach towards education, recognizing differences in approach to learning by different students in an adult learning environment (Rughanathan, 2013). The mixed response by students as to their preference for online learning and group work demonstrate the variety that exists between student groups. The change in the profile of learners in health professions, with larger numbers of mature aged and mixed ethnicity, has resulted in students with diverse characteristics, educational backgrounds and different expectations in the learning environment (James, D'Amore, & Thomas, 2011; Meehan-Andrews, 2009) This has resulted in greater variation in learning styles and preferences. Providing different approaches to presenting material helps cater for the different learning preferences and styles of different students (Meehan-Andrews, 2009). Peer online learning is one method of education that can assist in providing an effective learning environment for some students. Many students expressed a preference for face-to-face interaction. This is similar to other studies where students felt that face-to-face instruction was their preferred learning method (Rughanathan, 2013; Tsui, 2013). One of the reasons cited is the lack of real-life contact with other students and lecturers available in face-to-face learning and has been suggested

as one reason student's dislike online learning (Cobb, 2011). Creating a social presence is one of the challenges of successful online teaching (Cobb, 2011).

Preference for use of group work as a learning and assessment tool also varied between students. Similar to this study, group dynamics have also been found to impact on student learning (Meehan-Andrews, 2009). Some students identified difficulty in working in groups. Issues have been found with students undertaking groups work in not realizing the benefits a partner offers, one student doing all the work for the group, and 'groupthink' where students focus on only one idea and fail to look at other possibilities (Haberyan & Barnett, 2010). Although a common approach to instruction, group learning may be less effective than previously thought (Haberyan & Barnett, 2010). Preference for group learning has been associated with an extroverted personality and lower academic achievements (Genovese, 2012; Haberyan & Barnett, 2010).

Web based learning has been found to provide accessibility and convenience to learners (Du et al., 2013). This was similar to the current study where many students expressed appreciation for the convenience of being able to undertake the tutorials at their own time and place. Studies have found that time flexibility; convenience and lack of transportation worries are major benefits of online learning (Du et al., 2013).

Computer issues were a problem for several students due to the website interface and submission processes. Despite many students now being computer literate and having computers at home, the use of different programs and software at times was difficult for students to navigate. This is similar to other studies which have found that students feel uncomfortable when asked to navigate different software and can spend considerable time learning the computer programs, rather than unit content (Tsui, 2013).

Interestingly, students expressed a preference for blended learning, where both face-to-face and online learning were used together as learning methods. Learners have been shown to learn in different ways, with some students preferring to learn in multiple ways, using all of the learning modalities (visual, aural, reading/writing and kina esthetic) (James et al., 2011; Meehan-Andrews, 2009). This provides challenges for academics who must ensure teaching strategies meet the needs of a diverse range of learners, whilst covering the content required to prepare competent graduates. Using multiple teaching methods, including online learning, is one method of achieving the diversity in teaching approaches to cater for the diversity in learning preferences. While the small number of participants is appropriate for qualitative research, the findings are from a single group of nursing students at one rural campus of an Australian University, which limits the generalizability of results.

The students may be unlike other groups of nurses enrolled in university due to different curricula and their exposure to blended learning. In addition, the study assumed that the students had exposure to online learning platforms and were able to use classroom management software. However, the paper does provide information regarding differences in student opinions regarding online learning that may be valuable for nursing educators. Future research is indicated to explore how different learning preferences affect student results and learning outcomes.

### **Conclusion**

Peer Online Learning encouraged student participation and enabled flexibility in learning approaches; this minimized online isolation and most students participated well within the group sessions. This method of 'peer online learning groups' acts as a potentially unique learning space and helps to model an alternative learning approach to facilitate and improve student experience and learning online. Online learning is not the favored learning method for some students, and care needs to be taken to ensure that a variety of approaches to learning are included to ensure that all learning preferences are taken into consideration. Blended learning facilitates an increased in the variety of learning methods available to assist in meeting students learning preferences would also be beneficial to learning.

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**Table 1. Categories, themes and frequencies for Question 1:**

**What was your experience of working online with your student peers on assignment 1 group assessment task?**

Liked 23 (66%)

Disliked 10 (29%)

Undecided 2 (6%)

Ranking	Category	Code count (n=79)	Percentage agreement	Theme groups
1	Communication issues	14	40	Learning preferences
1	Time	14	40	Convenience
2	Group dynamics	13	37	Learning preferences
3	Easy	11	31	Convenience
4	IT issues	10	29	Other issues
5	Work life balance	5	14	Convenience
6	Face to face learning	4	11	Learning preferences
6	Learning strategies	4	11	Learning preferences
7	Stressful	3	9	Other issues
8	Travel	1	3	Convenience

**Table 2. Categories, themes and frequencies for Question 2:**

**Did you enjoy the online group activities that replaced the two face to face tutorial sessions during week 3 drug groupings and drug terminology and week 4 lifespan issues, adverse drug reactions and polypharmacy?**

**Liked 21(60%)**

**Disliked 11(31%)**

**Undecided 3(9%)**

<b>Ranking</b>	<b>Category</b>	<b>Code count (n=61)</b>	<b>Percentage agreement</b>	<b>Theme groups</b>
1	Learning strategies	17	49	Learning preferences
2	Face to face learning	9	26	Learning preferences
3	Group dynamics	7	20	Learning preferences
3	Communication issues	7	20	Learning preferences
4	Time	6	17	Convenience
5	IT issues	5	14	Other issues
6	Easy	4	11	Convenience
7	Worklife balance	3	9	Convenience
7	Travel	3	9	Convenience

**Table 3. Categories, themes and frequencies for Question 3:**

**Should there be more opportunity to work online in student groups within this unit/course or other unit/courses within the Nursing Curriculum?**

Liked 15 (43 %)

Disliked 9 (26 %)

Undecided 11 (31 %)

Ranking	Category	Code count (n=)	Percentage agreement	Theme groups
1	Learning strategies	14	40	Learning preferences
2	Balance between approaches	8	23	Learning preferences
3	Group dynamics	7	20	Learning preferences
3	Face to face learning	7	20	Learning preferences
4	Time	3	9	Convenience
5	IT issues	2	6	Other issues
5	Travel	2	6	Convenience
5	Work life balance	2	6	Convenience

**Figure 1: Survey Questions:**

1. What was your experience of working online with your student peers on the assignment 1 – group assessment task?
2. Did you enjoy the online group activities that replaced the two face to face tutorial sessions during week 3 drug groupings and drug terminology and week 4 lifespan issues, adverse drug reactions and polypharmacy?
3. Should there be more opportunity to work online in student groups within this unit/course or other unit/courses within the Nursing Curriculum?
4. Do you prefer face to face peer group sessions or online peer group sessions?

#### Research highlights:

- Peer learning online minimised online isolation commonly experienced as a distance or online student
- The majority of participants (66%) in this study liked the approach of learning online with their peers
- Blending peer online learning with traditional face-to-face learning increases the variety of learning methods available to students to enhance their overall learning experience
- Convenience and ease of completion were reported as the most common reason to like peer online learning, which is suited to the student demand for more flexible teaching approaches and programs

