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Off-campus nursing students online for science studies

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The first author, a lecturer of nursing, developed an initiative in which online problem-based conferencing was employed with a group of off-campus students studying a science course in the undergraduate nursing program. The second author, a second-year nursing student, reflected critically on her experience as a participant in the initiative. Both were motivated to write this paper following their positive experiences with the approach. Their reflections were supported by the results of an anonymous web-based survey administered to the class.

This pilot study revealed that students learnt more about the content, felt more connected with peers and lecturer, experienced less anxiety, and valued the approach as an effective way to learn. The importance of clear guidelines and optimal duration of conference could not be overemphasised.

Key words: nurse education, online learning, problem-based learning

Introduction

One of the courses offered in the nursing undergraduate external program is Scientific Basis for Nursing Practice, incorporating Microbiology, Pharmacology, and Pathophysiology. The science course required students to pass three pieces of assessment, one of which was a case study. The students were to organise themselves into small groups and deliver brief presentations about a patient suffering a particular condition. Each case study had several questions to be addressed. Presentations were conducted personally or via telephone conferencing.

Some criticisms of the above approach were raised, including: limited time to answer questions; difficulty in demonstrating and assessing understanding; segmented knowledge; and minimal benefit to other students who were not part of the presentation. Also, there was reduced interaction with students other than group mates, and it was perceived as confrontational – students felt as if they were being interrogated and embarrassed when not able to answer questions.

In response to these criticisms, a form of online conferencing using a problem-based learning approach was piloted to engage the students more positively. This paper reports on the evaluation of this learning and teaching approach.

On-line problem-based learning

Problem-based learning (PBL) is an active, adult-orientated, student-centred, collaborative approach applied in the study of many disciplines (Camp, 1996; Oliver & Omari, 1999; Michigan State University (MSU), 2005). It is much more than the use of cases. In PBL, students are assigned to small groups and presented with a problem and questions which serve as a springboard to learning specific content. The problem, determined by the lecturer, is 'authentic', i.e. likely to be encountered in the workplace, and 'ill-specified', i.e. there is no single answer to the problem (Oliver & Omari, 1999; MSU, 2005).

Constructivism is a philosophical view of human learning that underpins PBL (Savery & Duffy, 1995; Camp, 1999). Some advantages of PBL include: higher student motivation and rate of retention, deeper understanding of content, and skills development (Sage & Torp, 1997, cited in Oliver & Omari, 1999; MSU, 2005). PBL has been enhanced further by online technologies, allowing for synchronous and asynchronous communication between students and lecturer (Valaitis, Sword, Jones & Hodges, 2005; Santy & Smith, 2007).

The online educational initiative

Pre-determined real-life cases with problems and corollary questions were distributed to students. A case reported typically on a client presenting to a hospital with various medical complaints (Ward & Hartley, 2006). The past medical history, investigations, and treatments completed the case. Students attempted to solve the general problems of disease causation and suitable medical and nursing interventions. The lecturer posted different cases in the appropriate discussion group forums and assigned dates for online conferencing.

The discussion forums, which are part of the UniSAnet online learning environment developed in house at the university, served as a learning space where students constructed knowledge. The culmination of the group process was a PowerPoint presentation which was to be presented online. Discussions were threaded so that learners could follow successive postings to a topic, allowing documentation of the discussions and following presentations and availability of the same to the entire class.

During a presentation, the conference was structured as follows (Kravet, Wright & Carrese, 2001): case presentation with assigned students taking turns, response to questions, search for follow-up information, further discussions, and summary of take-home points. Students came back and forth to the discussion forum for a maximum of three days or until such time as the topic had been fully covered, and solutions had been exhausted. Some presenters provided links to relevant websites and made up quizzes to check understanding. The lecturer assessed the performance of the group, with some students providing feedback.

Methodology

Critical reflection contributed to the evaluation. The authors analysed and reconsidered the learning that transpired, questioned, and made personal meaning of the experience with a view to improving the approach for future implementation.

Moreover, all students enrolled in the course were invited by an e-mail containing the URL link to participate in a survey at the conclusion of the study period. A ten-item anonymous Likert-type questionnaire, followed by four open-ended questions, was administered via web-based TellUs2 (UniSA, 2008) to evaluate the approach. Students were asked to indicate the

extent of their agreement with statements describing their experiences. Other items explored students' general perceptions and suggestions for improvement (See Tables 1 and 2).

Survey information given to the students included a statement regarding the voluntary nature of participation and assurance of confidentiality. Completion of survey was taken as consent.

Results

Critical reflection by the second author identified a range of positive perceptions of the initiative, with some issues that were negatives for her.

Online PBL assisted her to relate to others by giving her the opportunity to work with students that she would not otherwise have worked with, and learning to consider other people's way of thinking. She learnt more about her topic and the topics of others because she was able to view other cases and follow discussions online. This broadened her understanding of the cases, affirming and challenging her knowledge, and clarifying what was expected of her.

This method allowed her to improve her skills in communication, teamwork and problem solving. These were honed while working and collaborating with other group members to solve a query, taking into consideration all the issues involved. Her difficulties with the approach were that she did not understand what was required of her initially and the duration of the online conferencing.

Of the 46 students enrolled in the course, 17 responded to the survey for a 37% response rate. Overall, survey results showed positive impressions of the online approach. (See Table 1.)

Table 1: Student perceptions about online problem-based conferencing

Statement	Agree to strongly agree N=17	Percentage
I was adequately introduced to the strengths and limitations of online problem-based conferencing.	9	53
The duration of the online problem-based conferencing was acceptable.	10	59
Online problem-based conferencing assisted my learning of the topic.	14	83
Online problem-based conferencing provided opportunities to interact with the lecturer.	12	71
This approach allowed ample opportunities to collaborate with peers.	13	77
My experience with online problem-based conferencing was pleasant.	10	59
This approach was a good substitute for classroom experience.	12	71
This approach was an effective way to learn.	13	77
This approach offered an innovative learning experience.	12	71
I recommend this approach of learning to other students.	10	59

Features of the online problem-based conferencing most and least liked are tabulated. (See Table 2.)

Table 2: Student perceptions about on-line problem-based conferencing

Open-ended question	Most popular responses
What are your general perceptions of online problem-based conferencing?	<i>Good way to learn</i> <i>See / learn other presentations and topics</i>
Specifically, what did you most like about it?	<i>Look more in depth into the topic</i> <i>Gaining knowledge about the other topics</i>
Specifically, what did you least like about it?	<i>It took up far too much time to complete presentation</i> <i>Guidelines were unclear</i>
What improvement/s would you like to suggest to this approach to learning and teaching?	<i>More explanations about what is expected</i> <i>Combine with telephone conferencing</i>

Discussion

This study revealed that PBL supported by online technology was workable for our purpose. Our results, though limited by poor response rate, showed that learning was enhanced and that the learning environment created provided a high level of interaction and engagement. (See Table 1, statements 3, 4, 5, 7, 8 and 9.)

In addition to the reflections of the second author, the comments from other students throw further light on the survey results:

Overall, I found it a good learning experience and an interesting way of conferencing!

Good way to learn, and you really did have to research your topic.

Less pressure, allow time to rethink ideas based on others' interpretation, can come back to it at some other time.

... enables distant learning to become a more user-friendly approach to study

... useful ... [seeing] other presentations gave a good opportunity to learn about the other topics as well as the one that we did.

It was very interactive.

The whole class gets to be involved.

Working as a team.

I preferred the online conferencing because it was free and open ... no time constraints and less intimidating.

The aspects most appreciated by the majority of the survey participants are captured below:

I learnt more about the topics, not just my own.

Firstly, we were asked questions and were allowed to study a particular topic ... We were 'pushed' (in a good way) to find out things and expand our knowledge of the topic. This I found particularly helpful.

It gave the opportunity to look more in depth into important issues the lecturer brought up that may have been otherwise overlooked.

Gave time to respond and enhance comprehension.

I liked this new approach ... the presentation is there for all students to have a look at and also refer to.

It helps structure your workload.

I like the immediate feedback. I enjoy the flexibility.

I liked the fact that it was in real time.

... I didn't get nervous [during the conference].

The course lent itself well to this approach as it consisted of several sciences so that the problem domain was broad. The learning space created was suitable because, in using a digital structure, students were able to ask questions, find answers, gather information, undertake group work, learn from each other, and communicate with the lecturer. Both computer conferencing and asynchronous communication were used to gain knowledge and solve problems.

Other studies support these findings (Camp, 1996; Ryle & Cumming 2007; Gonzalez & Salmoni, 2008). In applying online PBL to health science students, Valaitis et al. (2005) found that it increased learning flexibility, enhanced deep learning, and provided access to learning resources.

However, degrees of satisfaction with the approach varied amongst students. Similar to the sentiments of the second author, some criticisms were noted:

The conference could potentially go on for three days!

It was not explained well (or not understood well) as we had not presented in this way before.

In order to improve this approach, this lecturer plans to continue modifying and evaluating further the approach, taking into consideration the suggestions offered by the students. Combining it with telephone communication, allocating marks for online participation (Martyn, 2005), and shortening the conference to two days, are some strategies which could improve students' perceptions and experience. This lecturer will endeavour to provide a better orientation to online PBL by providing a background on and skills for successful online learning as illustrated by Santy and Smith (2007). The lecturer has a very important role to play as mentor and guide in this educational process. Attending facilitator training has also been suggested (Ryle & Cumming,

2007). Peterson (1997) emphasises the development of interpersonal skills, e.g. dialogue and discussion skills, to assist students to work together to solve problems.

Conclusion

Many lessons were learnt through this study of students being immersed in an online learning environment requiring them to solve problems. The initiative was found to be valuable for comprehensive and less-anxiety provoking learning and interaction; other departments and universities could profit from it.

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