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Introduction of a blended teaching strategy in an Occupational Health Nursing Education programme

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ABSTRACT

The purpose of this case study is to describe the use of a blended learning strategy to address some of the challenges experienced by adult nursing students in a specialised occupational health nursing course. These students are generally employed on a full-time basis and have a number of competing responsibilities that may impact on their studies. Blended learning using e-learning and face-to-face problem-based learning was identified as a useful educational strategy to address some of the challenges faced by these students in furthering their education. A blended learning strategy addresses the main assumptions of adult education, including self-directed learning, experience as a resource for learning, readiness to learn, problem-centred orientation with immediacy of application, and internal motivation. This educational strategy is recommended for adult learners and a formal evaluation of this blended learning method is planned.

Key words: blended learning, e-learning, problem-based learning, occupational health nursing, adult education

INTRODUCTION

According to South African law, a post-basic Occupational Health Nursing (OHN) specialisation is required in order to practice as an OHN practitioner (OHNP).[1] The OHN specialisation is offered at fewer than 30% of the 23 universities in South Africa and one private occupational health service provider, mainly in major urban centres. In KwaZulu-Natal province, the only nursing education programme offering the specialisation is the Durban University of Technology (DUT). Nurses who require this specialisation to work in an occupational setting live in a vast geographical area covering the whole of KwaZulu-Natal and stretching into the Eastern Cape and Eastern Free State.

These are adult students who have a number of roles outside the classroom including full-time employment and family obligations; many are working in occupational health (OH) settings and, in numerous cases, are the only health professional available to workers every day. Although motivated, they find it increasingly difficult to attend weekly face-to-face sessions at the university. This is compounded by the distances that many have to travel to attend the university and the limited public transportation systems. Some are self-employed and provide contract services in OH settings and weekly attendance means loss of income and other financial impacts on their business.

In response to the demand for the OHN qualification and the distance from Durban where many potential students reside, a blended learning approach involving e-learning to create a virtual classroom setting through the use of the Blackboard Learning System, and problem-based learning methods was adopted in 2011, by the Department of Nursing at DUT. The purpose of this case study is to highlight the first year of the use of a blended learning strategy to address some of the challenges experienced by these nursing students. Information for this case study was gathered through students` subject evaluation, course statistics, a review of the literature on blended learning in an adult population and the lecturer`s anecdotal evidence.

BLENDED LEARNING AND HEALTH PROFESSIONS EDUCATION

Blended or hybrid learning combines e-learning and more traditional classroom-based methods of learning.[2] Advantages include integration of the strengths of face-to-face and web-based learning activities through the use of both approaches throughout a course. The length of each learning mode varies according to the course design and the balance depends on factors such as the instructional objectives, the characteristics of students, the condition of online resources and the educator's experience. Blended

learning draws on different learning designs and philosophies and the goal is to have the right "mix" for the situation in which learning takes place.[3] Carmen suggests the need for five critical ingredients for blended learning: synchronous, instructor-led learning events in which all students participate at the same time; online content that is completed individually; collaboration between students; ongoing assessment of learning through testing; and clinically relevant materials that enhance learning retention and transfer.[3] A systematic review to determine if a blended approach to teaching and learning in clinical educational programmes showed it had the potential to enhance clinical competencies of healthcare students.[4] It included articles between 2000 and 2010 and found no description of the use of blended learning in a developing country context and suggested that this might be due to challenges associated with technological innovation in areas with poor infrastructure. The review did find that blended learning improved student competencies in reflective thinking, clinical skills, self-efficacy, and clinical reasoning.

CASE DESCRIPTION: B. TECHNOLOGY NURSING (OHN) CURRICULUM AT DUT

The OHN programme is placed within the Bachelor of Technology (B.Tech.) Nursing programme and leads to a professional qualification which enables registration with the South African Nursing Council (SANC) as an OHN specialist. The qualification is intended for OHN functioning at management level, and prepares for competency in applying advanced occupational health nursing strategies and technologies as well as management strategies. The two-year programme comprises four courses – Occupational Health, Nursing Research, Occupational Health Nursing and Nursing Management – consistent with the SANC Regulation 212 for additional qualifications in clinical nursing science.[5] The occupational health lecturer is specialised in OHN and has a broad, in-depth background in OHN theory-based clinical practice. The philosophy underlying this programme is constructivist and therefore a blended approach is being true to the paradigm of learning as an active process of constructing meaning and transforming understanding.[6] This case study relates to the Occupational Health course in which content is grouped around the following main themes: health risk assessment, occupational hygiene, analysis of physical and chemical hazards, toxicology, ergonomics, legal and ethical issues, and skills including audiometry, spirometry and advanced health assessment.

Prior to the introduction of blended learning, the programme of study consisted of in-person weekly six-hour classes over 32 weeks. Beginning in January, 2011, the first year Occupational Health course was offered to 32 students, using a blended teaching strategy. Before the introduction of the course using the new approach, all students participated in a six-hour orientation in the computer laboratory. Content that had previously been presented in the classroom was addressed though weekly assignments and learning activities given in the virtual classroom, with monthly in-person meetings using a problem-based format. Students who requested additional assistance received individual one-to-one attention with the nursing lecturer; the lecturer was available on a weekly basis in the DUT computer laboratory for one-to-one educational sessions and, over time, fewer and fewer students used this resource on the campus.

In addition, problem-based learning (PBL) was adopted for the face-to-face contact, a method which uses authentic problems around which students define their own learning objectives.[7,8] Learning materials, posted on the virtual classroom were used to scaffold the content for students. While there are a number of virtual classroom programmes available, DUT chose the Blackboard Learning System to support the web-based mode. According to their website (http://www.blackboard.com/), this is the most widely used educational technology throughout the world.

The OHN student has to be computer literate, self-directed and able to learn independently using e-learning. Blended learning allows students to work at times that are convenient to their personal lifestyle. It enables them to explore the content relevant to their clinical area within the framework of what is required to meet the SANC Regulation 212 and to construct knowledge useful for their own clinical practice. The PBL discussion which frames the face-to-face meetings is both appropriate and relevant to the adult learner.[9] Face-to-face discussion allows for various expertise and experience to be drawn on – each student has a unique capability and understanding of the topic under discussion and therefore contributes to a rich dialogue. This permits tolerance of a variety of meanings of concepts and allows students to think critically, since OHNPs in South Africa are nurse specialists, working independently[10,12] and who need to be able to clinically reason and problem solve in multi-cultural settings.

DISCUSSION

The use of a blended-learning teaching strategy is not without its challenges in this cohort of adult learners.

This programme has an expected retention of 100% and measures such as selection of students and content delivery strategies are employed in an attempt to maximise retention. However, as the students are adults with a multitude of roles and responsibilities the desired retention is often not realised and in 2011 a retention rate of 87.5% was reported for this cohort (one deregistration and three drop-outs). The benchmark success rate for the Faculty of Health Sciences at DUT is 84%. In 2011 the course reported a success rate of 87% which is above the Faculty benchmark but was negatively affected by the three drop-outs that did not deregister and therefore were reflected as failures. The success rate in this course has been between 83 and 100% for the last five years. This case study reflects the first year of this innovation

and so we are not able to report any significant changes in retention and success rates yet.

Offering the course via a blended approach afforded the opportunity to enrol for some students, who might otherwise not have been able to, as evidenced by one student's comment: *"Thank you for making the course possible. It is great for me to be able to work and study . . . I wanted to do this course for so long and you made it possible this year! I must say the fact that we did not have too much class was helping me because my employer does not have anyone to put in my place when I am not here."*

The lecturer perceived the greatest success to be the growth in confidence in the use of technology which many students experienced. Students who previously did not even own a computer purchased one and used 3G technology to access the Internet.

Challenges have centred on the use of technology on the one hand and secondly on varying levels of motivation for self-directed learning and understanding of the PBL methodology.

Technological issues related to Internet browser programmes, antivirus and firewall settings and students being computer literate enough to know where to type in the URL correctly. The most common challenge here was the firewall blocking access to the virtual classroom, especially when attempted from the workplace. The students had varying degrees of computer literacy and many were not able to identify the firewall as the problem. The Educational Technology Unit at the DUT was extremely patient and helpful as each student had a unique challenge with their particular circumstances, be it hardware or software and combinations thereof. The support of an Educational Technology Unit is crucial to the successful delivery of e-Learning.[13]

PBL was a difficult concept for students who have all come through a traditional education system[14] and was reflected in comments such as *". . . but I feel that I need to have more structured lectures or a guideline as to what is expected, what to learn for test/exam", "I would like to have more "formal" learning/lectures on the contact days although the discussions have been informative."* Students appreciated the monthly contact sessions as they facilitated their being able to do the course – *"I prefer the once a month contact sessions as we do not get study leave so we have to use our own leave as study leave"* but did not always identify the benefit they were deriving from the problem-based discussions – *". . . however they really weren`t structured enough and for the amount of sacrifice it took to take those days off, I often felt frustrated at how little we gained from those days."* PBL, one strategy used to foster life-long learning,[14] in this cohort has met with some success – *". . . I know nothing is stopping me to continue studying this subject further on my own . . . we are given all the tools we need, and are adult learners after all. I gained so much this year . . ."*

Student motivation is critical to an effective and successful online learning experience.[15] Research has shown that learner motivation has a significant impact on the learners' academic success.[15,16] Motivation to engage in the virtual classroom has been a challenge for some students who find the competing responsibilities time consuming. *"I would like to do more reading but haven't had the time; I would like to have spent more time in the library but have not been able to do so due to work and other commitments."* Although this same student reported that she *"would like to see more tasks in the course – not necessarily for marks – but as a way of learning."* Learning activities were established in the virtual classroom as a means of encouraging students to engage with the topic for the week. The statistics reported on the e-learning platform showed students spent a total of 380 hours in the virtual classroom throughout the year. The most time spent was just over 37 hours by one student, and there were students who did not access the classroom at all and who were amongst those who dropped out. Perhaps of more significance than time spent is the number of sessions students had in the virtual classroom. This varied from 179 to 0, with a mean of 58 sessions. The virtual classroom was used to "scaffold" the content for the course and students were expected to access this and do the learning activities as a way of engaging them with the content. As the year progressed less structure was given with regard to these activities and students were expected to find their own information as preparation for the classroom contact – thereby fostering self-directed learning. A study by Kim, reported that students found courses with little interactivity, modest application and integration of content to be motivationally challenging.[15] This is a challenge for the designer of the virtual classroom.

CONCLUSION AND RECOMMENDATIONS

Anecdotal feedback indicates satisfaction with this blended learning strategy, however the course needs to be formally evaluated through a rigorous research process. Future directions include the development of blended learning for the nursing research and nursing management courses offered within the programme. Attention should be given to the content in the virtual classroom to entice students into it and a rethink of the PBL strategy. A case-based approach might be more acceptable to this adult student population.

1. Evaluate the effectiveness of this teaching method in meeting the needs of both students and learning outcomes.
2. Strengthen the induction of students into the PBL methodology.

LESSONS LEARNED

1. The blended learning approach is a useful educational strategy to address some of the challenges faced by adult students.
2. Blended learning in an adult population has challenges with regard to the use of technology.
3. Orientation to the educational strategy and the underlying philosophy is important in getting acceptance of the strategy by adult students.

REFERENCES

1. Republic of South Africa. Occupational Health and Safety Act, No. 85 of 1993 and Regulations, updated October 2009. Claremont: Juta Law; 2009.
2. Kavadella A, Tsiklakis K, Vougiouklakis G. Lionarakis A. Evaluation of a blended learning course for teaching oral radiology to undergraduate dental students. European Journal of Dental Education. 2012; 16(1): 88-95.
3. Carmen JM. Blended learning design: Five key ingredients. 2005. Accessed on 18 June 2009. Available at http://www.agilantlearning.com/pdf/Blended%20Learning%20Design.pdf
4. Rowe M, Frantz J, Bozalek V. The role of blended learning in the clinical education of healthcare students: A systematic review. Medical Teacher. 2012; 34: e216-e221. Accessed on 19 August 2012. Available at http:// www.informalhealthcare.com
5. South African Nursing Council. Regulations relating to the course in Clinical Nursing Science leading to registration of an additional qualification. Government Notice No. R212 as amended by No R74. Pretoria: SANC. 1997. Accessed on 3 January 2012. Available at http://www.sanc.co.za/regulat/Reg-cln.htm
6. Fosnot CT. Constructivism: Theory, perspectives and practice. New York: Teachers College Press; 1996.
7. Wood DF. ABC of learning and teaching in medicine. Problem based learning. 2003. Accessed on 3 January 2012. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1125189/
8. Rhem J. Problem-based learning: an introduction. Phoenix, Arizona: The Oryx Press; 1998. Accessed on 3 January 2012. Available at http://www.ntlf.com/html/pi/9812/v8n1smpl.pdf
9. Smith MK. Malcolm Knowles, informal adult education, self-direction and andragogy, the encyclopedia of informal education. 2002. Accessed on 4 January 2012. Available at www.infed.org/thinkers/et-knowl.htm.
10. Michell K. Occupational health service delivery in South Africa. Workplace Health and Safety. 2012; 60(2): 63-66.
11. Naumanen-Tuomela P. Concept analysis of expertise of occupational health nurses applying Rodger's evolutionary model. International Journal of Nursing Practice. 2001; 7: 257-265.
12. Grainger L, Michell K. Occupational health nursing in South Africa. Enhancing international perspectives. AAOHN Journal. 2003; 51(1): 72-78
13. Arabasz IDC, Boggs R, Baker MB. Highlights of E-Learning support practices. Boulder, Colorado: EDUCAUSE Center for Applied Research. 2003. Accessed on 24 August 2012. Available at net.educause.edu/ir/library/pdf/ERB0309.pdf.
14. Smyth S. Postgraduate nursing students experiences of enquiry based learning at NUI, Galway. Handbook of Enquiry & Problem Based Learning. Galway. CELT, 2005. Accessed on 24 August 2012. Available at http://www.nuigalway.ie/celt/pblbook
15. Kim KJ. Motivational challenges of adult learners in self-directed E-Learning. Journal of Interactive Learning Research. 2009; 20(3): 317-335.
16. Walberg HJ. Improving the productivity of America`s schools. Educational Leadership. 1984; 41(8): 19-27.
17. Uguroglu ME, Walberg HJ. Motivation and achievement. A quantitative synthesis. American Educational Research Journal. 1979; 15(4): 375-389.

Pull quotes

1. "Although motivated, they find it increasingly difficult to attend weekly face-to-face sessions at the university."

2. "Blended … learning combines e-learning and more traditional classroom-based methods of learning."

3. ". . . problem-based learning . . . uses authentic problems around which students define their own learning objectives."

4. "Blended learning allows students to work at times that are convenient to their personal lifestyle."

5. "Student motivation is critical to an effective and successful online learning experience."