Enhancing the Experience of First Year Student Nurses Studying Bioscience

LOUISE MCERLEAN, University of Hertfordshire
LUCY TANG, University of Hertfordshire
ANTHONY WHEELDON, University of Hertfordshire
JERRY LANCASTER, University of Hertfordshire
MICHELE CHARLES, University of Hertfordshire
EMMA THORNTON, University of Hertfordshire

Abstract The aim of the project is to design a curriculum thread that delivers appropriate bioscience to pre-registration nurses throughout their three year programme and to explore new and innovative methods of delivery that can be used to stimulate interest and learning, equipping student nurses with the skills to continue learning beyond their three years of study and with the skill to deliver high quality patient care. The proposal is to change the first year bioscience module so that it is closely linked with the delivery of the first year skills module – so if the students are learning about blood pressure and pulse – that same week they would have a session on the cardiovascular system. If they are having a skills session on fluid balance, they would have a bioscience session on renal physiology and so on. The bioscience module would have to be delivered as small group sessions in line with the skills module. The current large lecture format is not the favoured method of delivery of the current students. Student feedback also suggests that students enjoy the positive reinforcement of learning that occurs from the lab session within the current curriculum. However, as lab availability is limited, investigation is ongoing to find resources that will allow the creation of a lab type experience within a classroom setting. The impact the proposed changes will have on the student experience will be evaluated through student feedback ensuring the curriculum and delivery of bioscience continues to develop into the second and third year of the programme of study.

The Project

The project is part of a change academy for blended learning (CABLE) initiative. A team of 3 lecturers, an e-learning consultant and a student currently enrolled on the programme investigated a first year bioscience module within a pre-registration nursing programme. This paper will present an overview of what the team found and some of the ideas generated to improve the module.

The First Stage

Bioscience is a topic that threads throughout the three year nursing programme. It is delivered in the first semester of the nursing programme and continues

through out the three years. The project begins with this first year module and will address second and third year following assessment of the changes made to the first year module.

The Issues and Student Evaluation

Currently the module is delivered within the first semester of the Common Foundation Programme – so called because the modules within it are common to all 4 branches of nursing (adult, child, mental health and learning disability). Each branch of nursing has its own idea of how relevant the teaching of bioscience is to the practitioner who will emerge at the end of the three year programme. Jordan et al. (2000) discuss CFP bioscience delivery as being biased toward the adult branch of nursing. Student feedback questionnaire data would appear to support this view.

The challenge for the team is to ensure that each branch understands the relevance of the topic to their chosen specialist field. Studies have demonstrated that a lack of understanding about the relevance of the topic can lead to the student being unsuccessful in the completion of the assessment for the module (Coen & Treagust, 1993).

Often students and indeed practicing nurses, have difficulty in linking what is taught in bioscience modules within pre registration nursing to the skills required to practice as a qualified nurse. Academic courses are delivered at universities and the content of the courses are aimed at improving outcomes and clinical effectiveness in terms of patient care but this link is not always clear. Indeed success is measured in terms of achievement of the learning outcomes and the changes in clinical practice that occur as a result of achieving the learning outcomes are rarely evaluated (Jordan, 1997) and indeed may be difficult to evaluate.

Student feedback also suggests that the current method of delivery of bioscience – the large lecture format supported by one small group lab and tutorial despite being the accepted normal (Davies et al., 2000), is not conducive to learning. The lecture is poorly evaluated; however the lab is well evaluated. The lab session is labour intensive as three lecturers from the teaching team to deliver to a group of 25 students. The content of the module is also criticised by the students. They say there is too much content delivered over a very short period of time making the module too intense. With ever increasing student numbers, the lecture format has been seen as a successful method of delivering hard content to large groups of students. However, if the students don't like it, then alternatives have to be explored. The lab session requires 3 lecturers to be in the lab with a group of 25 students. The challenge for the team was to investigate the possibility of delivering the content to smaller groups of students and instead of lecturing to use the time to provide a variety of classroom based blended learning activities. These would include the use of some dry lab activities that would not require the use of a lab or three lecturers to supervise.

131

Student groups are large, often up to 400 students. They are diverse, with a vast multi cultural mix. The educational background and age range within the group is also huge. This presents a challenge in terms of addressing the many learning styles and academic ability range that may be present within the group. Using a variety of blended learning approaches to deliver course content will accommodate some of the different learning styles present in such a diverse group (Meehan-Andrews, 2008).

The module runs in the first semester of first year and teaching begins in week 2 of the academic year. However, many students are not yet enrolled and therefore have difficulty accessing the university's online learning environment. The online learning environment is where all resources associated with the module are placed. Those students who can access it are novices at navigating it and spend the first few weeks trying to access the wealth of information available to them. Alternatives to online resources need to be investigated to prevent the first few weeks of the module being spent without access to supporting notes and resources.

A variety of blended learning is currently used within the module including the use of electronic voting, online quizzes, mock exam, online formative, lab, workbooks. These are well evaluated via the student feedback questionnaire and therefore should remain within the module albeit in a slightly different format. The project has given the team the opportunity to research resources and methods of delivery to enhance the strong blended learning strategy already present within the module.

Addressing the Issues

The bioscience team are traditionally all adult branch lecturers. However a lecturer specialising in learning disability nursing has been recruited to the team to provide insight into how the content can be made more relevant to learning disability nursing. The mental health and child team are not presently in a position to do this but will be consulted about any changes made to the module as they can provide valuable insight as to how appropriate the content is to their particular branch of nursing. The changes to module content and the lesson plans will be made available to a representative from each of the branch teams to ensure that they have the opportunity to add anything they feel may be relevant for their particular branch students. This also prevents overlap of teaching the same topics and allows the other branches to develop the follow on material that they will be delivering to the students in the second and third year.

A nursing skills module runs in tandem with the bioscience module in the first semester of first year. This module was also reviewed as part of curriculum development. This has created an opportunity for bioscience to link more closely to skills. While bioscience has traditionally been delivered in a body systems approach this will be changed to reflect a patient assessment approach that will be mirrored in delivery of the skills module where patient assessment skills are taught.

132

While skills' teaching has been delivered to small groups of 25 students this has not been the case for the bioscience module however the bioscience team are keen to attempt small group delivery but may not have the resources to delivery to groups as small as 25. It is important however to try to address the student feedback and reduce the group size from 150 – 200 students per group down to groups of 50 students per group.

The same lecturer will remain with the same group of students and deliver all of the content for the duration of the module. It is hoped that these groups of students will bond with each other and as a result first year attrition, which is traditionally high may reduce. It also allows the lecturer the opportunity to respond to the needs of the group as he/she will be able to introduce the following week's topic or present some required reading for the following week.

A simple solution to the issue of course materials' not being available to all students at the start of the module is to provide each student with a memory stick with all of the resources on it. This is reasonably cheap to provide but will require a member of staff to upload the material. This allowed the team an opportunity to consider what other important material we could provide on the memory stick. In order to ensure that bioscience is inclusive of all branches of nursing the team approached a practicing nurse from each branch of nursing and they have agreed to write a paragraph about why bioscience knowledge is essential to their particular branch.

The team are presently investigating additional blended learning resources. The use of publisher created resources that link to textbooks was discussed at length. However, these resources are costly with site licenses having to be renewed each year. Due to the short duration of the course and the limited content that can be delivered in this time, this option was not considered to be cost effective and therefore not included at this time.

Better use of already existing resources was also considered. Traditionally the workbook created to support the lectures has been well evaluated. However monitoring of the number of students who have accessed it, in the online learning environment, shows that few students do use it. By bringing the workbook into the classroom the team hopes to make better use of this resource.

Dry lab activities being investigated include the following: the use of a pulse oximeter and a capnograph in class, to investigate normal blood gas values; the use of different diameters of straw to demonstrate the affect of blood vessel diameter on blood pressure; the use of anatomical models to show the structure and anatomical features of the organs of the body.

Evaluation

The new bioscience module will commence in September 2009. The changes the team have introduced for delivery will be evaluated through traditional

student feedback. However it is also important to investigate how the changes impacted upon the staff delivering the module, the lecturers from the other branches of nursing who deliver the second and third year course content and the nurses in practice.

Through discussion with the module team at team meetings the views of the team can be acknowledged and explored. Meetings will also be organised with the branch teaching teams to gauge their perception of how the changes have impacted on their modules. A questionnaire will be developed to be administered to qualified nurses attending mentor update training at the university to evaluate any changes noted in the practice areas as a result of the change of delivery. This information will form the basis of any further developments required to improve the module. The present summative assessment for the module will remain as a multiple choice exam. Evaluation of the success statistics for this exam will also form part of the module evaluation.

Conclusion

Participation in the CABLE project has facilitated the opportunity to reflect on the delivery of one module. This reflection has allowed the team to keep what is evaluated as good about the module and to consider alternatives to those aspects of the module that are less well evaluated. The blended learning opportunities within the module remain but have been enhanced and are less resource intensive. The links created between the bioscience module and the skills module should demonstrate to the student how essential it is that module content does not exist in isolation but is part of the overall learning required to qualify as a competent practitioner.

References

Caon, M. & Treagust, D. (1993) Why do some nursing students find their science course difficult? *Journal of Nursing Education* 32(6) pp 255-259

Davies, S., Murphy, F. & Jordan, S. (2000) Bioscience in the pre-registration curriculum: finding the right teaching strategy. *Nurse Education Today* 20 pp 123-135

Jordan, S. (1997) From classroom theory to clinical practice: evaluating the impact of a post registration course. *Nurse Education Today* 18 pp 293-302.

Jordan, S., Philpin, S., Davies, S. & Andrade, M. (2000) The biological sciences in mental health nursing: stakeholders perspective. *Journal of Advanced Nursing* 32(4) pp 881-889

Meehan-Andrews, T.A. (2008) Teaching mode efficiency and learning preferences of first year nursing students. *Nurse Education Today* 29 pp 24-32

Biographies
Louise McErlean Senior Lecturer, School of Nursing and Midwifery, University of Hertfordshire. E-mail: l.1.mcerlean@herts.ac.uk

Lucy Tang E-Learning Consultant School of Nursing and Midwifery, University of Hertfordshire.

Anthony Wheeldon.Senior Lecturer, School of Nursing and Midwifery, University of Hertfordshire

Jerry Lancaster. Senior Lecturer, School of Nursing and Midwifery, University of Hertfordshire

Michele Charles. Associate Head of School (Teaching and Learning), School of Nursing and Midwifery, University of Hertfordshire

Emma Thornton, Student Nurse, School of Nursing and Midwifery, University of Hertfordshire