

FYE Showcase Submission

***Ready, Set, Go...'* – a flexible study package supporting the biophysical sciences in first year nursing**

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Context

The learning and teaching of science subjects in undergraduate nursing programs can be difficult and a number of issues which contribute to this have been documented (McVicar & Clancy, 2001). The biological and physical sciences are an important component of USQ's Bachelor of Nursing (Pre-Registration) program, the delivery of which has proven challenging. In 2007 this program underwent a major revision of its curriculum. One consequence of this change, among many, involved the development of a new course NSC1500 Biophysical Sciences in Nursing which comprises four distinct disciplines, namely physics, chemistry, biochemistry and microbiology/immunology. In a survey given to students prior to their commencement in this course, 40% of respondents felt they were not confident in studying science while 20% felt they were not prepared for the course (n=56). Students generally felt that all science disciplines in NSC1500 were important to their nursing profession; however, high workload was the major concern in the student evaluation of course questionnaire.

An obvious disparity in science background exists amongst this cohort. Whilst it appears that this does not affect student performance directly, it can have a negative impact with respect to high workload. Anecdotal evidence has shown that there is a close relationship between previous science study and level of workload required to adapt to an unfamiliar discipline. McKee (2002) argues one way to achieve a suitable standard in these disciplines while not overloading is to establish a base knowledge required before starting the course. An intensive chemistry bridging course is available to NSC1500 students prior to commencing their studies and has shown to be very beneficial in their studies. However, this is costly and is not accessible to all students, many of whom are in full time work prior to taking up their places in the program. Online resources are one way of providing flexible additional support to the teaching and learning of these courses and there are various links available to students (see <http://myonlinenursingdegree.com/biology-help.html> for example). However, these links are often unreliable and are time inefficient as students filter through information that is either too advanced or irrelevant which in turn generates more anxiety. Gretszy & Cotton (2003) developed a freely available online resource with the view of improving the bioscience knowledge of nursing students prior to commencement of their studies. However, the problem of subject specificity and reliability of links remain.

Action taken

Alternative ways of improving and supplementing nursing students' base knowledge of biophysical science needs to be investigated. A key strategy lies in the production of a pre-

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study resource that is tailored to the subject material presented in NSC1500. The originality of the creation of a CD support package for this course lies in the unique combination of disciplines, that is, the physical, biological and microbiological. The aims of *Ready, Set, Go...* will be to: 1. Offer extra support material and guidance about biophysical sciences within a nursing context. 2. Provide information in an accessible format 3. Provide formative assessment in the form of self-testing of course material so that students can assess their own level of scientific knowledge (online quizzes with instant feedback) and 4. Build a good foundation for other nursing studies. The resource will not contain any new material and there will be no summative requirement for students to complete it. Its primary role is to serve those students who are apprehensive of their ability to understand biological and physical science concepts which in turn has the potential to reduce the fear and anxiety in relation to this discipline. Although intended to be used prior to and/or early in their studies, embedding the package into the course materials will also ensure that it will continue to be a valuable study aid during the semester.

Proposed activities

Ready, Set, Go... will be a technology-enhanced, flexible learning support package that will be made available via CD for all USQ students upon acceptance into the BNUR (Pre-Reg) programme for the 2010 intake. The target audience will be students intending to enrol in NSC1500 Biophysical Sciences in Nursing in semester 1 of that year and will be an optional resource specifically designed for students who do not have any science background.

The support package will be developed over three stages:

Stage 1: Initial students needs analysis

A student needs analysis will be carried out before any development work is initiated by evaluating the S1, 2009 NSC1500 student cohort. The aim of this exercise will be to discover nursing students' perceptions of their own scientific knowledge prior to starting the course, and the amount and type of help they would have liked before their course began.

Stage 2: Development of the resource

The information provided by the student needs analysis will provide the basis of subject matter in the *Ready, Set, Go...* CD package and will be used to guide its development. Quizzes with instant feedback will be one form of learning activity and will enable students to assess their own level from the outset.

Stage 3: Delivery and evaluation of the resource

The CD will be made available to all students upon acceptance into the 2010 intake to ensure that students receive adequate time to utilise the resource thereby utilising it to its full potential. The continued use of the resource throughout the semester will also be reiterated for the purpose of those students enrolling late. Evaluation of the resource will be performed approximately 1 month after enrolling in NSC1500 to ascertain whether they have used the resource and then at the end of the course to evaluate its usefulness as a study aid. The evaluation of *Ready, Set, Go...* will be designed to assess its usefulness as a flexible support resource for first year nursing students. In particular, it will measure its effectiveness as an instrument for enhancing the student learning experience by reporting change in student attitudes, participation rate, workload perception and overall performance. Various evaluations will be performed throughout the project and will primarily focus on:

- Content and design of the *Ready, Set, Go...* package
- The influence of *Ready, Set, Go...* package on the student learning experience
- The impact of the *Ready, Set, Go...* package on learning outcomes and student performance

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Intended project outcomes

This project intends to considerably reduce the amount of anxiety experienced by nursing students in science courses and thereby reduce associated workload by providing an optional contextualised science resource for students to complete either prior to or early in their studies. *Ready, Set, Go...* is a targeted CD resource that aims to provide substantial benefits for students in supporting the sciences in the nursing curriculum and is expected to achieve three key outcomes:

- Increased flexibility in student learning for both domestic and international students by providing a resource that can be accessed by all students as and when required in their own time.
- Facilitate the transition to first year science study in nursing.
- Enhanced learning experiences for students.

NSC1500 is an introductory first year course and a positive student experience in this course can set the scene for success in subsequent years. It lays the foundation for many nursing science and nursing courses, therefore, improving this course should benefit retention and progression as well as enhance knowledge and reduce anxiety in relation to application of knowledge in subsequent courses.

People involved

This project is supported by a 2008 USQ Associate Learning and Teaching Fellowship. The fellowship team includes Bernadette McCabe (Course leader and chemistry/biochemistry/microbiology module design); Helen Ison (Examiner - Fraser Coast campus and microbiology module design) and Alfio Parisi (physics module design).

Further resources

Nil.

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