



**Higher Education Academy, Health Sciences and Practice
Subject Centre**

Mini-Project Phase 7

Project Title:

Development, implementation, and evaluation of an e-learning
module in Evidence-based Healthcare Practice

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Work Completed:

The module was launched in semester two with a start date of 5th Feb 2007. The students were closely monitored, with evaluation before students started the module and on its completion. Module milestones in detail were as follows:

1. Module description was defined, submitted and approved by the Faculty Course Approval Sub-committee and the University of Ulster Teaching and Learning Committee.
2. A teaching fellow in evidence-based practice was recruited in August to work on development of module content and evaluation tools.
3. Module content was developed and converted into an eLearning format for the online module.
4. eTutor(s) were interviewed and hired in preparation for 5th Feb module start.
5. Students were informed of the module and asked to note interest; a total of 10 students participated in the pilot.
6. Students completed a pre-module questionnaire in preparation for the module start.
7. Module assessments and deadlines were chosen consisting of three assignments submitted throughout the semester.
8. Institute of Biomedical Sciences accredited the module as part of the MSc Biomedical Sciences programme and for continuing professional development.
9. Module began on the 5th Feb 2007
10. Lecture content was released weekly and assignments were submitted at end of weeks five, eight and fourteen. Students were given regular feedback.
11. Students completed a post-module evaluation and retook the pre-assignment questionnaire to assess changes in attitude and ability.

Student Uptake

Students were slightly hesitant about being the first cohort to study the module, thus interest was lower than expected. However, feedback suggested those students who discussed this module with their employer were encouraged to choose Evidence Based Practice. It was also thought that more students would be drawn to the module as assessment was 100% coursework, yet evaluations showed that students were more attracted by the subject matter- only one student identified the assessment method as a motivating factor.

The gender mix within the student cohort was 20% male, 80% female. The module is by distance learning, so students can be based in any worldwide location. In the pilot of the module, one student was from overseas, with the rest being from the UK or the Republic of Ireland. The module was designed to be accessible to students from any location and to be applicable to students from any health-care related background/profession.

Module Assessments

Assignments were based on the five steps of the EBP process: (1) identifying the question, (2) searching for evidence, (3) critically appraising the evidence, (4) implementing the findings and (5) evaluating changes to practice.

Assignment One: Evidence Based Practice. Students complete the first two steps of the process, with students identifying their own question to be researched, based on an area specific to their own particular profession practice or interest.

Assignment Two: Critical Evaluation, Appraisal and Discussion. Students are given a question and must critically appraise the available evidence in a discussion forum (step three of the process).

Assignment Three: Professional Portfolio. Using assignment one as a basis, students complete all five steps of the process, discuss the importance of EBP and reflect on their own performance.

Assignments one and three were to be based on each student actually performing the steps of EBP; however the difficulty of identifying questions that were relevant to the students arose. Although it was a possibility that the tutors could assign pre-chosen questions to each student, it was felt that the preferable option would be to allow the students to identify their own question for these two assignments. This had the advantages of ensuring students undertook research into a question which interested them and was of relevance to their own professional practice and working environment. It was, therefore, decided that students should submit their own question. The disadvantages were that the tutor had little control over the area of healthcare the student chose and as a result there was a large variation in the amount of relevant evidence available to each student. To partially counteract this, the students were asked to submit their question for approval early in the module.

Assignment two involved a group discussion centred on critical appraisal. For this particular assignment only, the students were given a scenario with accompanying question. They were then expected to search for evidence, discuss the evidence with other students on-line and arrive at an answer to the question supported by the evidence. This assignment was designed to develop their ability to think critically about the evidence and to interact with their fellow students using sound evidence to support their opinions. In reality the students spent most of the allotted time looking for papers and, even when prompted by their tutor, were reluctant to discuss specifics about the quality of the research. In hindsight, although it was appropriate to provide the students with the scenario, they should also have been provided with a small selection of the most relevant papers so that they could begin discussing the evidence straight away.

The majority of the marks for the module were based on submission of a professional portfolio (assignment 3) at the end of the module which included a record of the students' progress through each of the five EBP steps and a personal reflection on their own performance. It was of concern that a student might choose a difficult or unsuitable research area and not realise it

until late in the module when it would be more difficult to adapt. To counteract this problem, the students were asked to submit their record of the first two steps of EBP (constructing the question and finding relevant evidence) in week six as assignment one and were given formative feedback to inform their professional portfolio (assignment three).

Student Participation

The engagement strategy included the following:

- Provision of 5 online lectures (released through the first 5 weeks of the 15 week module) on the steps of the EBP process, with these aspects introduced in a logical order.
- Provision of a “Skills Pack” that included aspects such as: reflective writing, how to reference and how to avoid plagiarism.
- Provision of a glossary of relevant terms.
- Setting the students formative tasks during the first 5 weeks (lectures) of the module, accompanied by asynchronous discussions.
- Holding of chat rooms at intervals throughout the module, in particular to support the completion of the assessments.
- Setting of assignments designed to support the students in learning the steps of the EBP process and to test their ability to critically apply these skills and processes. The approach was to design the assignments such that the assignments (1 and 3) could be specifically applied to the students’ own individual areas of professional practice.
- Undertaking of random telephone vivas towards the end of the module, to deter cheating and to gain additional student feedback.

The overall level of student engagement in the module was high and all participated in most aspects of the course.

A weekly task was assigned at the end of each lecture to test the students’ understanding and discussion boards were set up for most of these tasks. However, despite numerous prompts from the tutor, only a few of the students participated in these early discussions. Later in the module, it became evident from the level of student interaction that they preferred the real-time interactions involved in chat room discussions and were less comfortable with asynchronous discussion boards. Some students were prepared to use the discussion boards throughout the module but most only used them when the discussion was compulsory and assessed. In contrast, all but one student took part enthusiastically in the chat rooms and keeping them to the topic was not a difficulty. Students gained a number of transferable skills during the module such as independent learning and critical reflection, however greater engagement during discussions would have resulted in further development of group work skills and better preparation for assignment two. The students themselves noted this in their module feedback: “*More chat/online discussion needed after the launch of each lecture to ensure understanding of the lecture and checking the results of the tasks provided*” yet at the time they were reluctant to participate.

The first step to addressing this problem would be to use chat rooms for more aspects of the module. Thereafter, it may be possible to make the sessions and tasks compulsory and/or count towards their final mark although, it is not always desirable to have every aspect of a module formally assessed. Two solutions would be (a) to give a small percentage of the module marks for participation throughout the semester or (b) to make release of each lecture dependent on completion of the previous week's task.

Student Experiences/Feedback

Online module evaluation: The module evaluation showed that all students enjoyed the module. Highlights identified by the students were online chats and the critical appraisal/reflection components. One student commented (the module was) "*very useful to the developing way in which labs are moving e.g. critical self examination of practice*"

Staff/student consultation: Four students were selected at random for a telephone discussion with the module co-ordinator concerning their experiences. The main points that arose from these discussions were:

- Students in general preferred chat room sessions to discussion boards
- Most (three out of four) students would have liked chat room sessions earlier in the module
- One student experienced some technical difficulties due to lack of broadband coverage
- All students agreed that tutor support during the module was prompt
- One student particularly liked that module assignment guidelines and deadlines were released at the beginning of the module which aided their time management and module planning
- Three out of four students found some of the lecture content difficult
- One student commented that she did not like the online medium and did not participate in the chat rooms or discussion boards even though she could see from the transcripts that the others found them useful.
- All students said the module was better than expected and they would recommend it to colleagues

eTutor Experiences

Similar to most online teaching and not peculiar to this module, the etutor noted the difficulties in getting the students to participate in the early tasks and online discussions. It was particularly frustrating when the students then suggested that more interaction early in the module was required. The etutor suggests chat room sessions rather than discussion boards should be used whenever possible as the students respond much better to the real-time environment and, in general, the chat room sessions were well attended. The tutor also noted that students did not ask questions during the module, even when prompted. The tutor took this to mean that there were no major problems with the lecture content and was then dismayed to find during assignment two that the students had obviously struggled with some of the content. The tutor suggests that chat rooms based on the lecture content/tasks should

help to identify weak areas sooner. Finally, the etutor noted that assignment two was in general poorly done and that some modifications should be made.

Quality Control and Moderation of Assessment

The assignments were marked by the etutor using a marking scheme provided by the Module Coordinator and approved by the External Examiner. There was ongoing communication between the Module Coordinator and the etutor to ensure the smooth running of the module. The assignments were all moderated by the Module Coordinator. Random telephone vivas were carried out towards the end of the module in order to deter cheating. Student work was submitted for plagiarism checking.

Student Performance

The students' marks showed a normal distribution for assignment one (Table 1). Although there was generally a reduction in each student's mark for assignment two with less students scoring more than seventy, equally no-one failed this assignment. One student failed both assignments one and three and one failed only assignment three.

	<40	40-49	50-59	60-69	70-79	>80
Assignment 1	0	1	1	4	3	1
Assignment 2	0	0	5	4	1	0
Assignment 3	2	1	2	2	3	0
Module	0	1	3	4	2	0

Table 1: Distribution of student marks for each assignment and the module overall.

The pre and post module surveys were used to identify students' current understanding, use and opinions of evidence based practice. The pre-module survey revealed that 60% of students felt they could define EBP, this rose to 100% by the end of the module. The students who undertook this module indicated that the importance of EBP skills to their professional practice increased once they had completed the module (see Table 2). One student commented that *"This module has made me look at my professional practice in a different light. Although we often verbally assess particular practices and experiences, we currently have no formal way of doing this. The introduction of the key skills framework with diaries of learning might be a way of introducing more formal way of assessing practice."*

Question	Pre-module	Post-module
Using literature to inform your professional practice	50	67
Research skills in relation to your profession	50	83
Employing EBP in your daily professional life	40	50

Table 2. EBP factors deemed “very important” in professional practice.

Suggested Modifications

1. Chat rooms rather than discussion boards after each lecture to check on student understanding and monitor completion of the weekly tasks.
2. Restructuring of assignment two to focus attention on the critical appraisal of the literature.
3. The VLE used has other tools that could be employed to support learning. For example, formative quizzes could be introduced to help students evaluate their own learning of key concepts.

Emerging Issues

The module will be open to other allied health professionals as part of CPD and there is an issue around ensuring the applicability of assessment two, (a web based discussion of an appropriate question and evidence supplied by the module team) to a cohort which includes professions other than Biomedical Scientists.

Product

The primary product is a web-based resource which others can access. The website will feature an introduction to the module, methods of assessing its success, summary of findings and a list of useful resources for others developing their own evidence based module. This site will be accessed through the main University of Ulster gateway or directly at: <http://www.science.ulster.ac.uk/biomed/ebp/index.html>

Secondary products are publication of a report in a relevant journal such as Learning in Health and Social Care (a manuscript is in preparation) and presentation of the research at appropriate meetings. The research was presented at the Festival of Learning in Carlisle, 2008.

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