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Overview of Module

The final teaching cycle to be included within this PGCTHE portfolio has been designed to develop student engagement on the module by varying teaching styles and techniques, in a hope that student attendance and satisfaction would improve. The teaching intervention was carried out on a second year module; Sports Medicine (SS25510), the module is a 10-credit, optional component of the students second year, running in semester 2 and is comprised of 59 students. The lecture format involves one, 2-hour lecture per a week. The assessment is a 2000 word essay to examine a specific musculoskeletal injury of the student’s choice.

Rationale and Aims

This module provides a good setting for an interactive and applied lecture style that should grasp a student’s interest and provoke the students to really want to investigate their chosen assessment topic and to therefore achieve higher levels of cognitive domains. However, as this module stands the lectures follow a fairly formal structure, consisting of passing information on, rather than self exploration of a problem. The assessment consists of a 2000 word essay, which in the past has been submitted around week 7 or 8, this leave 3-4 weeks of lecture content after the submission date which is not assessed in any form; students although interested in the subject tend to not attend many of the sessions post submission.

The second rationale for restructuring the lecture format is to try and make the lecture content reflect the learning outcomes and the assessment. Currently only 2 from 6 learning outcomes are covered by the assessment and only 2 from 11 lectures reflect content on the assessment. Students are left to their own devices to write their assignment, with little structure or direction provided in the lectures. Lectures are isolated topics which do not or are not linked together to form the ‘larger picture’. The structure of the module as it stands does not facilitate students to problem solve or to evaluate and apply their knowledge into a variety of settings, nor does it encourage those students who are outcome orientated to engage in the variety of topics covered, which are not assessment driven.
The other issue surrounding this module that I want to address within this teaching cycle is the lack of student involvement within the lectures. The module really lends itself to practical problem solving projects and activity-based learning tasks. These can be instructor led, but there is also considerable scope for peer teaching and learning to be conducted, as students can bring their own previous experiences to the group (e.g. past injuries and rehabilitation techniques used). These experiences can then be used to apply their knowledge to, the students can analyse these experiences, and evaluate the effectiveness of the treatments prescribed, this process would help develop higher domains of cognitive learning, which is what I wanted them to replicate in their assessments.

As a result of the poor time considerations, lack of stimulation and paucity of learning objectives being assessed has consequently led to a relatively poor performance on the module evaluations and student satisfaction of the module.

The aims of the current teaching cycle were to:

- Align the module learning outcomes with the lecture content and assignment
- Increase student attendance at lectures
- Increase student interaction/discussion in lectures
- Improve student satisfaction on the module, especially in the following areas
  - Appropriateness of material covered
  - Applications to theory
  - The module was interesting

Review of Literature

To enable students to achieve their maximum potential we need to promote learning goals, these include; the approach to teaching (Student focused approach to learning helps to foster a deep approach to learning), four conditions of learning (student focus, knowledge rich, community valued and assessment driven), constructive alignment and practice and variation.

Deep learning is a transforming approach to learning, relating ideas, looking for patterns/underlying ideas and gaining an understanding. To nurture a deeper approach to learning, as a lecturer I need to be student focused, as learning is enhanced when the teacher acknowledges and incorporates the
knowledge and beliefs that the learner brings to the given situation (Bransford, 2000). It has been demonstrated that the teachers approach to teaching impacts on the students’ approach to learning. A student focused (conceptual change) lecturer is developmental and students adopt a deep approach, compared to self-focused teachers (information transmission) who are instrumental and lead students to adopt a surface, reproducing fact approach to learning (Trigwell et al., 1999). Providing a student with usable and transferable knowledge rather than a list of disconnected facts, also promotes a deeper approach to learning (Bransford, 2000).

Meaningful learning occurs when the learner interprets, relates, and incorporates new information to solve novel problems. Meaningful learning requires multiple opportunities for the student to be actively engaged in the reasoning and application of concepts (Rao and DeCarlo, 2001; Michael, 2001; Committee on Developments in the Science of Learning, 2000; Mintzes and Wandersee, 1997). One of the most effective methods for encouraging a deep approach is by getting responses from students by questioning and posing problems to them, it is essential to build on what the students know and to value their contribution to the lectures/discussion. Students need to be allowed to make mistakes and take risks within the safe environment of the classroom, although constructive feedback here is critical. A lecturer needs to encourage depth and understanding rather than breadth of a topic (Kolb, 1984; Shuell, 1986; Dewhurst et al., 2000 and Beach, 2003).

As we have discussed one of the most important factors influencing learning is what the student already knows. The student must link new information to concepts they already possess, this process is critical for solving novel problems. Peer instruction is a cooperative learning technique that may promote this process (DiCarlo, 2006; Giuliodori et al., 2006; Cortright et al., 2005; Rao et al., 2002; Rao and DiCarlo, 2000) and will be one that is encouraged throughout this module and teaching intervention. There are many other suggestions and techniques that are promoted in the research literature, to be drawn upon to promote group participation and active learning in lectures and many of these suggestions will be implemented, or at least taken on board when I am planning my lecture structure. As these ‘tools’ provide opportunities for students to be actively engaged in the reasoning and application of concepts (Walker, 2003; Carbone, 1998; Mazur, 1997; Silberman 1996; Angelo and Cross, 1993; Bonwell and Eison, 1991; Lymna, 1981).

Teaching is simply the catalyst for learning. If students are to learn desired outcomes in a reasonably effective manner, then the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in achieving those outcomes (Shuell, 1986). Constructive alignment of the teaching, learning outcome’s, material covered, teaching and learning activities and the assessment is paramount to motivate and encourage a student’s desire to learn and engage in a
module (Biggs, 2003; Rust, 2002; Brown et al., 1997; Atkin, 1995). In a good system, all aspects of teaching and assessment are tuned to support high level learning, so that all students are encouraged to use higher-order learning processes. Constructive alignment is such a system. It is an approach to curriculum design that optimises the conditions for quality learning (Biggs, 2003; Rust, 2002; Biggs, 1996).

The Teaching Intervention

This teaching cycle consisted of many small changes to the organisation of the material, module Performa and the teaching styles utilised within the lecture contact time.

The first part of this teaching cycle was to change the assessment to align with the learning outcomes and to move the assessment date later in the semester. It was decided that the only way to cover all the learning outcomes in an assessment was to change the 2000 word essay to an examination. The module is only a 10 credit optional choice, so we did not want to introduce a second assessment in addition to the essay, as this would have led to over assessment of the students. The module change form was submitted to the Dean for approval to start in 2009 semester 2. After consulting the literature and discussing with my mentor, it was decided that we would still keep the essay (as a seen exam) regarding the analysis, synthesis and evaluation of a rehabilitation programme of their choice, as this was well structured to aid the students to achieve higher levels of learning autonomy and the students could formulate their answer throughout the semester. The seen essay will be supplemented with a second section on the exam covering other topics and learning outcomes that are studied over the duration of the module.

The second aim of this teaching cycle was to better align the learning outcomes of the module to the structure and content of the lectures. Primarily, 3 lectures (Sport in Extreme Environments; Athletes with Predisposing Medical Conditions; The female Athlete) were removed from the content of the module, although these topics are inherently interesting they did not align with the aims and objectives of the module and would be better placed in other modules in the degree programme. These three lectures were then replaced with two sessions examining injury case studies of a specific region of the body. The injuries examined in these case studies were decided upon by the students in weeks 2 and 3. These case studies bring together the previous weeks content and apply it to practical situations, in which the students can examine the mechanics and aetiology of the injury and progress through to designing and evaluating rehabilitation programmes. The third session was
replaced with Ethical Issues in Clinical Sports Medicine, as this covers an important learning outcome which previously had not been addressed adequately.

The structure of the lectures was also reorganised, so that the content flowed and developed from one week to the next, making the lecture contents a process rather than distinct individual topics. The new structure was a firm bases for students to replicate when writing their own assignment / essay for the exam.

The third and probably most important aspect of this current teaching intervention was to change the formal structure of the lectures to a less formal structure in which active participation and student engagement could be developed and enhanced to make lectures more interesting and to also increase the application of relevant theory. A whole range of techniques were used throughout the module, depending on what was appropriate for that session, the important thing was to change what I was doing with the students frequently enough so that they would not loose their concentration and therefore the flow of the session. The idea of spending less time talking at them and more time discussing issues with them, getting them to problem solve and learn through self-exploration was always at the forefront of my mind.

A whole variety of techniques were used to refresh my lecture, I varied the type of media used in lectures; for example I used YouTube clips of surgical repairs and for examples of how an injury occurs, press clippings to highlight the pressures that sport clinicians and athletes may face when injured and the internet to demonstrate where athletes can go for professional advice and up to date list of banned substances. The most controversial exercise I did was to demonstrate how easy it was to purchase illicit performance enhancing drugs from the internet and how difficult this was to police as a Sport’s Governing Body.

I also took a selection of rehabilitation tools (eg. Fit balls, wobble boards, bands, tennis balls, footballs etc) to the relevant lectures and get the students to play with them, whilst trying to come up with ideas that would work for rehabilitation programmes. This self exploration allowed them to get out of their seats and actively engage in problem solving tasks.

Finally, I used a variety of techniques to develop discussion among the group; these included large group debates, Think Pair Shares, small discussion groups, quizzes and arranging groups so that someone with the experience of a specific sporting injury can share their experience to a small group, who in turn discuss the treatment and rehabilitation programme to experience some real life examples of which to evaluate.
The current teaching cycle was evaluated by examining the student module feedback, which is conducted routinely as part of our departmental policy to assess their satisfaction on the module; this feedback on the aims, material, organisation, application, achievement of aims, interest and assessment of the module. Student grades were compared to previous years and attendance reports were monitored.

**Implementation of the Teaching Intervention**

The main problem that arose with this teaching cycle was that I could not implement the change of assessment this semester, although I had submitted the relevant paper work prior to the deadline the Dean did not process it in time for the commencement of this teaching cycle. Therefore it will start in 2009-10. This meant that the learning outcomes that were not covered by the assignment, were formatively assessed in the lectures, via quizzes and reading tasks in which feedback to the students was always provided. The coursework deadline was also pushed back to the very end of the semester, to try and prevent students non-attending post deadline.

**Evaluation**

**Generic Module Evaluations**

Results from the departmental generic module feedback forms conducted during the last lectures of the semester showed a considerable improvement in the students' satisfaction levels (Figure7). The only scale to have seen a decrease in its score, was the 'I achieved the aims of the module'. Across the Sport Science course we see lower values for this component on modules in which students have not received their assessment grades at the time of completing the evaluation; this is likely to be the case in this situation as well.

Students reported that following the changes to the module they understood the aims of the module better, the material covered was more relevant, better organised, had a greater application to the theory and as a consequence students found the module more interesting and that the assessment was fairer and reflected the learning outcomes and content covered.
Figure 7 Comparison of qualitative student module evaluations

Note:
Aims: I understand the aims of the module; Material: The material covered in this module is appropriate; Sessions: The sessions in the module are well organised; Applications: There are sufficient applications of theory to help me understand the subject; Achieved: I achieved the aims of the module; Interesting: The module is interesting; Assessment: The assessment in this module is fair.

Attendance

Attendance figures (Figure 8) for the semester still tailed off as the term progressed. However there were considerable improvements in the latter half of the semester, especially from week 7 onwards (in the previous year this was when the coursework was submitted). There still seemed a dip in attendance at week 8, on further investigation this day tied in with the students’ submission of their dissertation proposal. By week 11 there was almost 40% more students attending the session than compared to the previous year.
Module Grades

The performance on the module did not change due to the teaching intervention; the same average module mark was achieved pre and post teaching intervention. However, when the number of students achieving each grade was analysed 27% of the students achieved marks greater than 70% compared to only 13% in the previous year. Due to the higher number of students achieving the top grade, there were fewer students achieving the 60-69% grade, but overall the same percentage of students were achieving a 2:1 to 1st degree class for their assignment (Figure 9).

The grades suggest that the changes made on the module, aided those students who normally average a 2:1 for this assignment to perform better and gain a higher grade, yet this does not seem to be reflected in those students attaining a lower second or third grade, where the distribution of marks remained fairly similar between the years.
Conclusion

I feel the first time I taught the module, I was not only new to the content but also to teaching per se and probably did not actively encourage questions and student interactions, and as the module content and structure led to a very them and me situation it was easier to avoid the interaction than it was to develop it. As a consequence both I and the module structure probably did not allow the students the freedom to learn. Following the teaching intervention involving the restructure of lecture content and format, I really enjoyed teaching the module and thrived on the student interaction, I knew they were not only understanding, but asking further questions and evaluating the content, whilst making links and connections to other topic areas. The students engaged and so did I, I felt that a deeper learning style was being achieved not only by the students but also personally, without either myself or the students being aware of this. These changes really had an impact on the learning environment and promoted open interactive lectures, which engaged nearly all of the students in any given session.

The improvement in attendance demonstrated that the students valued the lecture contact time more than in previous years and that they could perceive that the content covered in those later weeks was still important to their assignments, despite the inability to change the assessment to an examination. The students changed perceptions were also reflected in the improved feedback attained on the module evaluations regarding their satisfaction of the module. The overall grades
for the module did not improve; however, more of the 2:1 level students performed better and achieved Firsts in this assignment. The changes to the module did not have an impact on the marks of the weaker students within the year.

In summary:

The change in teaching techniques and the alignment of learning outcomes to the module content improved

- Student attendance
- Student satisfaction
- The number of students achieving higher assessment classifications
- Student participation in lectures
- Application of knowledge

Future Professional Development of Teaching Practice

The change of assessment form has now been accepted, therefore the assessment next year will be a 2-hour examination, consisting of two sections. The first section will be comprised of short question answers assessing the variety of topics covered over the duration of the module. The second section will be a seen essay question requiring the student to analyse and evaluate a rehabilitation programme for an injury of their choice. This will finally solve the issue of not assessing all the learning objectives, whilst maintain a piece of constructive work that they can develop throughout the module.

The change in assessment will need to be monitored carefully to observe how the students perform on the module and how it effects their satisfaction.

The incorporation of a variety of media teaching aids and using a variety of ‘tools’ to promote student discussions and participation in lectures I will endeavour to introduce where possible into other modules I teach on. This was a very useful method to keep the flow of a lecture, whilst changing what I and the students are doing at regular intervals helped to maintain interest and concentration.