Teaching research through interdisciplinary and collaboration methods: analysis of research modules in two schools of Health Professions

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Abstract: Interrelating of research and learning has always been the primary role of all universities. The symbiotic relationship between research and teaching creates an environment in which learners develop reflective, inquiry and lifelong learning skills. Purpose: The purpose of this paper is to review teaching of research module across selected modules in two universities. Research as a module in the School of Health Professions at both Universities of Plymouth and Limpopo, is taught throughout the programme (4 years at MEDUNSA and 3 in Plymouth). The research based approach that is used in teaching research method at the school is aimed at linking research to learning by encouraging the working of students in groups. The active, student-centred approach to learning encourages active engagement of students at the School of Health Professions. Methods: Content analysis of the two programmes was done to identify common grounds for collaboration and interdisciplinarity.
[A gap of common grounds for interdisciplinary collaboration was identified. **Teaching research through interdisciplinary and collaboration methods: analysis of research modules in two schools of Health Professions Ushotanefe Useh.** Life Science Journal. 2011;8(S2):58-62] (ISSN: 1097 – 8135). http://www.lifesciencesite.com.

Key Words: Common grounds; Collaboration; interdisciplinary learning

Introduction

Traditionally, higher education has been seen to have two broad functions: research and learning. To use the language of contemporary educational philosophy, the academy is concerned with the production and reproduction of knowledge; it both generates and disseminates understanding and ideas. The interrelating of research and learning has always been the primary role of the university (Garnett and Holmes, 1995; Brew and Boud 1995). According to Brew (2003), the problem in bringing teaching and research together come at a time when many are critically questioning the role of universities, their status and function in the society and the role of academic research in this. Most universities are even redefining what their roles are. For professionals to effectively work together after graduation, they should learn together. The barrier for them working together is usually created by the unique roles that are played by the governing bodies of these professions. One area that students can be made to work together is through interprofessional research collaborations.

The importance of students being able to understand and to some extent do research is now arguably of greater importance (Jenkins, Healey and Zetter 2007). According to Garnett and Holmes (1995), research makes a significant contribution to teaching and learning. Recent work on the application of research to teaching reveals that research can transform the teaching/ learning experience (Garnett and Holmes, 1995; Edwards and Thatcher 2004). For the teacher, it creates confidence, promotes self-esteem, and releases motivation power during class contact. For the students it provides the opportunity to engage in the skill of enquiry and critique, which is a pivotal experience in higher education; it also gives them exposure to the current state of art in particular field of study. In summary the value of the link (teaching and research) can be expressed in three perspectives: experientially which benefits students and staff, conceptually in terms of societal needs and the development and communication of knowledge and operationally as a learning activity (Zetter, 2002).

Brew (2003) states that the suggestion that teaching and research should be more firmly drawn together should not be seen as an argument for educating all students to become academics, nor is it merely an academic exercise to prop up arguments that all academics should engage in research. Rather it is a response to a number of changes in higher education system. The linkages between research and teaching are a topic of both national and international

interest which has generated much debate. There is still a lot to be done to harmonise both in the classroom. The reasons for difficulty in harmonising these needs to be explored.

The symbiotic relationship between research and teaching creates an environment in which the researcher has to plan the presentation of the research carefully; simple conceptual models may have to be prepared for teaching purposes. The presentation of such models and the discussion of the research in the classroom may expose research weaknesses. This leads to the modification of the presentation and in so doing helps the researcher to think through and improve the explanation of the research. Undergraduate students often think in divergent ways and ask questions about peripheral and related concepts, which the researcher may not have considered Garnett and Holmes (1995).

Controversial evidence on teaching–research relation has been documented (Jenkins, 2004). In reviewing the evidence on the relationship between research and teaching, Healey (2005) citing Brew (2001) notes that "the belief that there is a connection is stronger than statistical evidence". According to Healey (2005), one of the pieces of evidence cited by government White Paper for Higher Education in England to justify their proposal to concentrate research further in a limited number of higher education institutions was a meta-analysis of 58 articles which showed that there was not a significant relationship between research productivity and teaching effectiveness. The greatest misrepresentation and misinterpretation leads to the conclusion that research and teaching should be separated for funding purposes. A zero correlation means that good researchers are neither more nor less likely to be effective teachers than are poor researchers; and good teachers are neither more or less likely to be productive researchers than are poor teachers. Whatever the view, the aim should be to increase the circumstances in which teaching and research have occasions to meet: universities need to set as a mission goal the improvement of the nexus between research and teaching (Jenkins, Breen, Lindsay, and Brew 2003; Healey 2005; Jenkins and Healey 2005).

One reason why the links between research and teaching are not simple is that they may take a variety of forms ranging from bringing data and findings from staff research into curriculum, developing student's research skills using assignment that involve element of research process, using teaching and learning process processes that stimulate research processes (e.g. problem based modules, dissertation modules and problem based-learning), giving students the opportunity to work on research projects alongside staff (as research assistants) to giving students first-hand experience of commercial consultancy (e.g. as an intern, as work-based learning, as a consultant assistant or as a supervised consultant) (Healey, 2005). This can be a fairly passive experience for students if a transmission model of education is followed. More effective can be the use of a variety of ways in engaging students actively in their learning by getting them to do research themselves through undertaking some or all of the stages involved in carrying out a research project. This is possible through out degree programmes and need not be restricted to the final year dissertation.

Research as a module in the School of Health Professions at the University of Plymouth, England is taught throughout the three year period. At level one, research is delivered as "Evidence-based Practice and Lifelong Learning". This is the preparatory module for the level two. The level two module is designed to enable students understand different research designs, to evaluate the research literature and to provide them with an opportunity to develop a research protocol for a small scale research project. The protocol they develop forms the starting point for the research project they undertake, with their fellow group members, in the Year 3. This module aims to reflect the thought processes and the practical steps that they will need to consider when designing their research protocol. In order to enhance this, the lectures and seminars are ordered in the logical sequence that they are likely to occur during the development of such a protocol. The research module at the physiotherapy department of the University of Limpopo, MEDUNSA Campus of South Africa is also taught in a similar way. The module is delivered across the four year degree levels with statistics at level one, development of research protocol in level three and research is conducted, written up and presented for examination in fourth year.

Programmes in most School of Health Professions are encouraged to collaborate across disciplines with no established framework for interdisciplinarity. The disciplines or programmes in schools of Health Professions are usually governed by different professional bodies for control and ensuring quality. Examples of these bodies are Health Professions Council of South Africa, South African Nursing Council and the Medical Council of South Africa. These bodies make disciplines decision. To

create an avenue for interprofessional decision, a unit that should ensure interdisciplinary needs to be established to ensure that common grounds between disciplines is identified to integrate conflicting insights (Repko, 2008). According to Repko, common ground helps us to establish the basis for identifying disciplinary theories, concepts, and assumptions that will enable us to combine or integrate insights and thus produce an understanding that is interdisciplinary.

This paper shall attempt to analyse and reflect on the links between teaching and research in a two selected Schools of Health Professions. The learning experiences of the students will also be analysed.

The analysis was based on common ground theory and the scholarship of integration. Common ground postulates that discipline working together presumes a common cognitive frame of reference between partners of interaction called common ground (Repko, 2008).

The philosophical & theoretical Framework

According to Brew (2003), the way we think about things is determined through learning in social settings. The scholarship of integration is concerned with making inter-disciplinary connections and if a socio-cultural basis of learning is accepted, it follows that the provision of good quality of collaborative settings for learning should be an important goal at all levels of education (Waite and Davis 2006).

Methodology

Content analysis of the module across disciplines was done for two different schools in the United Kingdom and South Africa. The undergraduate research module in the School of Health Professions is delivered across the three levels (year 1 to 3) and across five disciplines of physiotherapy, podiatry, midwifery, dietetics and speech and language therapy. This is aimed at encouraging collaboration and peer learning amongst students and staff (Waite and Davis, 2006). The collaboration was only amongst students across the disciplines. There was however no evidence that indeed this happened since it was not assessed.

At level one the module is known as the Evidence Based Practice (EBP) & Lifelong Learning module. The key element of evidence based practice is the utilisation of information obtained from health care research. The expected skills at level 1 include those of search and retrieval of evidence and skills of appraisal of different types of research-based evidence. In order to be able to make a judgement

about the relative merits of different kinds of research in the context of practice, they need to develop critical appraisal skills. As the module progresses, the students will develop their understanding of 3 key research designs, the interpretation of research findings, and how to make a judgement about the implications of the evidence for practice.

At level two, the research methodology module is designed to enable students to understand different research designs, to evaluate research literature and to provide them with an opportunity to develop a research protocol for a small scale research project. The protocol they develop forms the starting point for the research project they will undertake, with their fellow group members, in the Year 3

This module aims to reflect the thought processes and the practical steps that they need to consider when designing their research protocol. In order to enhance this, the lectures and seminars are ordered in the logical sequence that they are likely to occur during the development of such a protocol. This structure enables the student to receive developmental feedback about their thought processes, from both the module teachers and their fellow students, throughout the course of the module.

Students are expected to be active participant in all of the lectures, seminars and workshops. As with all modules, in order to maximise their learning they are expected to undertake some work in their own time, especially that which is related to the Independent Directed Study Activities.

The assessment consists of two elements: a theoretical exam which comprises multiple choice and short answer questions, and the submission of written coursework (development of a research protocol). Each element contributes to the overall module mark.

This leads to a 30 credits, it builds on the foundation of the level 1 module "Evidence-based Practice and Lifelong learning" and the level 2 module. The aim of the module is to enable student undertake a systematic and in-depth investigation of a topic of their own choice and interest, related to their discipline (e.g. physiotherapy).

This module is delivered through project tutorials and self directed study.

They are allocated a member of academic staff who will supervise their learning. The assessment consists of two parts:

a) A 3000 word journal article; and b) The oral viva.

Discussion

The research centred and the research based approach that is used in teaching research method at the school is aimed at linking research to learning by encouraging the working of students in groups from their second year. It is expected that peer learning would also occur. Boud and Lee (2005), describes peer learning as a two way reciprocal learning activity which involves networks of learning relationships amongst students and significant others (e.g. teaching staff). They further stressed that within the general field of teaching and learning in higher education, considerable investigation has now been undertaken of students working with each other and the ways in which it can be fostered in courses, mobilizing formal discourses of 'peer' or 'collaborative' learning. This is also not assessed at the end of the module. Though the specific kind of 'peer' relationship that existed between students was not analysed in this paper, it is possible that their performances would have been enhanced as the collaboration process unfolds and might have sustained motivation within groups (Department of Health 2001; Waite and Davis, 2006). At this stage a common ground was also not identified. It might be necessary therefore to identify a common ground for future interdisciplinary activity.

At the moment there are a few challenges with regards to collaborative learning between students of the different disciplines within the school. These challenges ranges from resources, structure of courses and different professional board governing disciplines within the school.

Apart from the students in level one (where they are taught Evidence-based practice and Life Long Learning), there are no inter disciplinary projects at levels two and three (four in MEDUNSA). It would be expected that they work together with the aim of solving inter or multi-disciplinary problems as members of the Health team mirroring the work situation within the National Health Service (NHS) or Department of Health (DoH) (in the Southern African situation). Hopefully, this will change with time as resources improve. The skills attained at this stage will also be transferable to work situations. The move to more explicit skills formation in 'research training' has come from a number of stakeholders.

Industry and employer groups have been calling for a broader skill set for research and related employment in industry. Some students are looking for career preparation in an increasingly fluid job market. Within academia, there is concern that research education has become too narrow and concerned with producing research results at the risk of limiting the educational function (Pearson and Brew, 2002). According to Pearson and Brew (2002), for those wanting to build in a broader skill set for research students, there is a tendency to focus on what is perceived as missing. In Australia and the UK, this is often identified as the area of so-called 'generic' or 'employable' skills and it is contained in the following list: good communication/presentation skills; · good work practices and collaborative skills; information technology/computer literacy; the ability to use fundamental and technical knowledge to applied systems; occupational health and safety, and hazard analysis; · good manufacturing practice; · intellectual property management skills; highly developed skills to adapt to new areas of activity; a reasonably broad practical knowledge; familiarity and knowledge of broader literature;

Skills in the scientific method and linkage to the broad context; experimental design, modelling, statistics; · good laboratory practice (Winn, 1995).

Conclusion

In conclusion, to a large extent in contrast to the passive role encouraged by a traditional lecture based programme, active, student-centred approaches to learning involve the active engagement of students is demonstrated at the School of Health Professions. It is expected that more learning by doing and more collaborative projects between students and multidisciplinary and clinical staff would assist and encourage peer learning and collaborative experience. It is paradoxical that at the Faculty of HSW, students are required to learn by doing, yet due to the bureaucracy and ethical requirements in the NHS and DoH they cannot do so with practitioners in the NHS and DoH and are therefore made to work with simulated situations and therefore acquires skills which might not be transferable to actual work situations. Perhaps the greatest potential gains from learning by doing allow students to develop an understanding of the process of doing research by following a research project from its early stages to its conclusion including ethical requirement and clearance.

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6/20/2011