
ORIGINAL ARTICLES

Development of a Mixed-Mode Undergraduate Chiropractic Program

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Objective: The purpose of the article is to report on the development and implementation of a mixed-mode undergraduate chiropractic program at McTimoney College of Chiropractic. **Methods:** A team of senior academic staff addressed a wide range of issues in the development of the new program. A team of core academic staff, together with module leaders, was charged with designing and writing a new B.Sc. Chiropractic degree program. The program progression is designed to provide increasing intellectual autonomy as critical skills are developed. The team also addressed the need for new academic and administrative structures to support the new course. **Results:** The elements of the curriculum were achieved through a development process that involved the entire academic team. The program has been validated by a United Kingdom University as a full-time program. **Discussion:** The high level of involvement and communication between the academic and administrative team has become an embedded culture and will have considerable positive impact. The new program has augmented and improved the College's performance in a number of ways. (The Journal of Chiropractic Education 18(2):97-102, 2004)

Key words: chiropractic education, directed learning, formative assessment, mixed mode, program development

INTRODUCTION

Education in the United Kingdom (UK) over the last 15 years has undergone major change. The UK tertiary sector, represented by the Universities and Colleges delivering undergraduate and postgraduate programs, has also experienced radical change as successive governments attempt to widen access to the adult sector, especially those retraining in the context of a career change. Changing social expectation, funding pressures, and the development of institutions as knowledge brokers and the students as customers have driven a reassessment in the way that tertiary education delivers undergraduate training (1). Thus, there is considerable political

pressure and theoretical support for the expansion of mixed-mode approaches within undergraduate education (2).

These pressures have been widespread and have had an impact on not only purely academic courses, but also the training of the professions, including those within the health care sector, up to and including the hallowed traditions within undergraduate medical training (3). Graduates who acquire the skills of self-direction, particularly the autonomy of their ongoing learning and problem solving, are the new goals of modern medical education. Medical courses have long recognized that they cannot teach everything that doctors consider relevant, and continued additions to these courses can lead to what has been termed "curriculum hypertrophy" (4). The rapidity with which knowledge becomes obsolete implies that teaching today's facts seems less relevant than ensuring that students have the skills to learn and relearn as knowledge develops.

The Journal of Chiropractic Education
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Vol. 18, No. 2. Printed in U.S.A.
1042-5055/\$4.00

Methods once scorned as inappropriate for medical education are now being embraced by many UK medical schools in their attempts to modernize the training of doctors for the 21st century (5). In a recent survey, 17 out of 21 UK medical schools have instituted, or are about to institute, virtual learning environments to support more student-centred teaching and self-directed learning (6).

Wider educational issues, recently articulated by the UK government, highlight these changing views now being implemented within the tertiary sector (1). These include much more emphasis on part-time, distance, and on-line learning; recognition of the erosion of the traditional divide (full-time and part-time, further and higher, academic and vocational); recognizing and providing life-long learning opportunities and widening participation; higher education working in partnership with others to deliver learning in a form and at a time and place that suits the student; and more flexible delivery, via electronic learning and other means.

In an environment created by these changing needs, there is little indication that chiropractic education is addressing the new educational demands of the 21st century, though there has been some change in the last decade within certain chiropractic institutions who have moved away from didactic learning toward more problem-based learning (7). Only recently have attempts been made in the UK by bodies such as the General Chiropractic Council (GCC) and General Osteopathic Council (GOsC) to formulate core qualities which have to be demonstrated at the completion of undergraduate education (8,9). This outcome-driven approach is very much a European characteristic and is seen less in North American education. However, it is important to recognize that it is standardization of the outcome that is the key point, not standardization of the process.

Clearly, some individuals may embrace different methods of learning better than others, and a match between the educational method and the characteristics of the student cohort is important. Not only has this approach been shown to be more effective for promoting autonomous learners, but it is also seen to be more appropriate to that mature group of students who have been, or are, employed and have returned to education to retrain (10). In addition, it encompasses precisely this group within the population highlighted by the UK government as a key target in their attempt to widen access to higher education (11).

The College recognizes that this may be the only route that allows students with heavy family or work commitments to complete training in chiropractic, and a combination of mixed-mode and traditional didactic-dominated routes to professional qualifications is already present in the similarly regulated osteopathic profession (12). Given the fact that some consensus as to core aspects of a graduating chiropractor is beginning to emerge, acknowledging the college's commitment to widening access and its experience in this regard, and recognizing the present education environment with its pressures for modernization, the college sought to undertake the development of a new undergraduate degree using mixed-mode delivery to meet the needs of the profession.

METHOD

Rationale

The new B.Sc. degree program was developed to address the contemporary needs of the chiropractic profession, out of a desire to improve the delivery of knowledge and skills necessary to produce primary contact graduate chiropractors. A team of senior academic staff addressed a wide range of issues in the development of the new program, including the requirements of the General Chiropractic Council, the statutory body for regulating chiropractic in the UK; the learning needs of the students, including support for directed study in the context of mixed-mode education; and the strong wish of the team to rationalize and develop the delivery of the program after many changes and amendments since the original validation and accreditation in 1999. The scheme of study is seen as being of major significance and value in that it offers students who are employed, or those who want a new direction in life, a route to achieve a professional qualification in chiropractic.

Process

The current 4-year B.Sc. Chiropractic program was recognized for the purposes of the Chiropractors Act (1994) in December 1999. Amendment was made to the program over time, and it became obvious to the staff that this rapid pace of change meant that the program was no longer fully integrated. Moreover, staff had lost touch with the underlying rationale for the delivery of the program. The

senior management of the College therefore decided to re-evaluate the existing program, and to use this as the impetus for deeper and more lasting change within the culture of the institution. A team of core academic staff, together with module leaders, was charged with designing and writing a new B.Sc. Chiropractic degree program.

The rationale behind extending the present 4-year degree to 5 years centered on three main areas. First, the present course had become compressed, particularly in preclinical areas. Expansion, mainly in the later years' material, allowed more time to be spent on these areas, linked to more time for reflection, consolidation, and integration on the part of the students. Second, there was an awareness that some elements were not included in the current program, and proper consideration and addition of new material into the program required more time. Finally, there was recognition that the burden on students to complete the required study in the allotted time was becoming too heavy.

The documents that were used to inform the process included the regulatory body's Indicative Syllabus, Code of Practice and Standard of Proficiency, and the University's validation criteria that defined a full-time mode of study. This outcome-led approach used, *inter alia*, the criteria for contact and student workload hours and the criteria for graduate qualities laid out particularly in the regulatory body's Indicative Syllabus, which broadly outlines course structure and content but avoids any comment on the mode of delivery (13).

The teaching and learning were structured to provide a clear framework of progression across learning levels, culminating in safe, autonomous chiropractors with the confidence and skills to synthesize new knowledge and solve novel problems. Chiropractic studies, philosophy, and research modules are taught at all levels and form the core underpinning around which basic and clinical sciences are presented (see Table 1). The program progression is designed to provide increasing intellectual autonomy as critical skills are developed (see Fig. 1). The skills required within a chiropractic practice are interwoven with the development of research skills that provide the ability to judge and generate new knowledge, while philosophy provides the context within which this knowledge is applied to practice.

The team also addressed the need for new academic and administrative structures to support the new course and considered a variety of modes of delivery

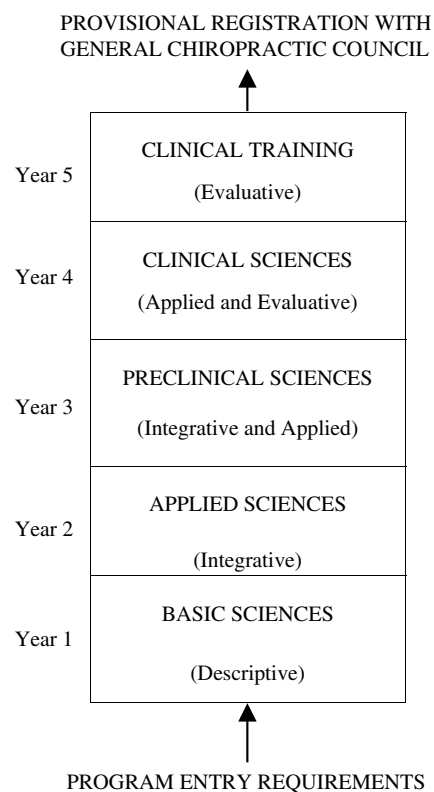


Figure 1. Knowledge and cognitive progression across the program.

and assessment of course content. In order to properly monitor the significant proportion of directed learning on the new program, a strategy had to be developed that allowed for regular and consistent dissemination of directed study tasks, ongoing monitoring and support of students' progress in acquisition of knowledge and skills gained in this way, and appropriate feedback to the student at times early enough for students to improve their performance.

The course design team took a decision to construct a Directed Learning Diary (DLD) for each module, congruent with the material that needed to be learned outside the didactic delivery element of module content. Developed from student workbooks that had been in use on the current program for some years, the DLD comprises a portfolio of work accumulated by the student for each module. It is the main formative assessment method, with all modules being summatively assessed at the end of each module. It was conceived as a structured way of supporting the students in their preparation for the assessment of all learning outcomes for each module through end of module, or end of semester, summative assessments.

Table 1. Program Progression

Modules	Year 1	Year 2	Year 3	Year 4	Year 5
Anatomy					
Physiology					
Biochemistry					
Biomechanics					
Neuroscience					
Pharmacology					
Pathology					
Musculoskeletal Medicine					
Behavioral Science					
Clinical Neurology					
Differential Diagnosis					
Imaging & Referral					
General Medicine					
Patient Assessment					
Philosophy					
Chiropractic Studies					
Research					
Clinic					

RESULTS

Academic Structure

The major change to the academic structure was the appointment of year leaders, who have the responsibility for the quality assurance and delivery of the program in each year, in response to a need to devolve academic responsibility to key management staff. Responsibility for the quality assurance and delivery of the program between years rests with the new position of Program Coordinator. Development of responsibility down to these two new

layers of management is intended to provide greater integration and increased access for students to discuss issues concerning the day-to-day delivery of the program.

Administrative Structure

The creation of a formative committee, to review student performance in academic, practical, and clinical matters, was a direct result of the need to monitor and evaluate the students' response to the new program on a regular basis. It is also within this context that non-academic issues such as failure to

attend and unsatisfactory attitude may be considered in relation to performance in clinic areas.

Course Content

Some of the modules, developed in the previous program, were incorporated into the new program if it was considered they had been successful in the past. However, the elements were incorporated into a new structure through a development process that involved the entire academic team from senior management, through to middle management (year leaders), to module leaders who developed module content, assessments, and descriptors. This iterative process was time intensive, but it was felt that ownership of the course, at all levels, was essential in order for successful delivery and integration once the course was implemented.

Assessment Strategies

One of the significant additions for the new program was the development of the DLD, an ongoing formative assessment tool, which provided close support and monitoring of student progression. The DLD documents regular directed study for each of the modules in all 5 years of the program, which the students compile into a portfolio to evidence their learning. Plans for the near future anticipate transfer to an electronic version similar to that already developed in medical education (14).

DISCUSSION

The process by which the new program was achieved attempted, from the beginning, to encourage ownership at all levels, and as such required a large number of meetings among staff. This presented some challenges, both in organization and the project management of the creative process in order to achieve an efficient flow of material from module leaders through year leaders and into the production of the documentation. The high degree of involvement and the interactive nature of the process required that all participants understood the wider aspects of course structure, assessment strategies, and administrative structures. This proved to be a cultural change for some members of the team, who initially expressed some resistance to this widening of involvement early in the process.

However, ownership at wider levels of the course encouraged a more involved, integrated team with extensive knowledge of where, how, and why the

elements of the course fitted together. This level of involvement and communication between the academic and administrative team, resulting from the design process, has now become an embedded culture that has extended beyond the completion of the course design and will have considerable positive input on the subsequent delivery of the new program.

Given the presence of extensive specialized expertise among staff, it was the organization and maintenance of communication in the process that proved to be the biggest learning curve. However, success in this area has provided a more cohesive, knowledgeable, and involved team that will have considerable positive input on the delivery of the course.

The new program has augmented and improved the College's performance in a number of ways, including development of a strong, integrated academic team with broad knowledge across the program; the introduction of new key academic staff positions with the responsibility for assuring the quality of delivery of the program within and between years; the formation of additional operational academic committees, including a formative committee to monitor student performance; and introduction of a DLD that strengthens the direction and monitoring of the student's progression.

The program has been validated by a United Kingdom university as a full-time program, delivered by mixed mode over 5 years, leading to a B.Sc. (Hons) Chiropractic degree. It is a pathway for acceptance to the professional Register of the General Chiropractic Council.

Received, August 23, 2003

Accepted, August 11, 2004

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REFERENCES

1. Higher Education Funding Council for England Strategic Plan 2003-08. HEFCE Web site. Available at: http://www.hefce.ac.uk/pubs/hefce/2003/03_35/03_35.doc.
2. Robinson K, Shakespeare P. Open Learning in Nursing, Health and Welfare Education. Buckingham, UK: Open University Press, 1995.
3. Tomorrow's doctors: Recommendation on undergraduate medical education. General Medical Council Web site. Available at: http://www.gmc-uk.org/med_ed/tomdoc.pdf.
4. Abrahamson S. Diseases of the curriculum. *J. Med Educ* 1978;53(12):951-7.

5. Fox NJ, Dolman EA, Lane P, O'Rourke AJ, Roberts C. The WISDOM Project: Training primary care professionals in informatics in a collaborative "virtual class room." *Med Educ* 1999;33(5):365-70.
6. Roberts C, Lawson M, Newble D, Self A. Towards a managed learning environment in medical education: Sheffield's story. Available at: <http://www.shef.ac.uk/nlc2002/proceedings/papers/34.htm>.
7. Kleynhans AM. The Relevance of Mixed Mode Teaching: Learning Strategies to Chiropractic Education. Victoria, Australia: Kleynhans Education Consultancy, 1999:1-18.
8. Standard of proficiency and code of practice. Gen Chiropr Council 2000:1-35.
9. Standards 2000. Gen Osteopathic Council 2000:1-24.
10. Ortimer A. External Studies in Australia. Armidale, Australia: The University of New England 1982:1-32.
11. Knowles M. *The Adult Learner: A Neglected Species* (3rd ed). London: Gulf Publishing Company, 1988: 13-28.
12. Flexible learning: The mixed mode pathway. Prospectus of the British School of Osteopathy. British School of Osteopathy Web site. Available at: http://www.bso.ac.uk/school_prospectus.htm.
13. Criteria for recognition of degrees in chiropractic. Gen Chiropr Council 2002:1-38.
14. McGlade KJ, Toal C, Kernohan WG. An electronic learning diary. *Active Learning* 1996;4:42-5.