RESEARCH

How an online questionnaire can explore leadership teaching in an undergraduate curriculum

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Summary

Objectives   To design a tool to explore current leadership teaching in an undergraduate curriculum, using the medical leadership competency framework (MLCF)

Design   An online questionnaire was designed based on the MLCF competences and sent to all course leads at Imperial College, London in Autumn 2011

Setting   Imperial College, London

Participants   Sixty-nine course leads were invited to participate in the questionnaire study

Main outcome measures   Course leads were asked whether they teach each MLCF competence, which teaching methods they use, and how long they spend teaching each competency

Results   Overall there was a 78% questionnaire response rate (54/69). From the questionnaires received it was possible to extrapolate results across the remaining courses to achieve a 100% response rate. We were then able to produce a map of current leadership teaching showing that all MLCF competences are taught to varying degrees across the curriculum. The tool does not however provide information on the quality of teaching provided, or what students learn

Conclusions   There is a strong emphasis on the development of teaching leadership skills to undergraduates in Tomorrow's Doctors 2009 (TD09). It is difficult to know what teaching occurs across the curriculum of a large medical school. The design of a simple, electronic questionnaire will enable medical schools to map their current leadership teaching to the TD09 outcomes. This will help to inform further curriculum development and integration as well as signposting of learning opportunities

Introduction

Tomorrow's Doctors 2009 (TD09)[1] highlighted the importance of acquiring leadership skills as undergraduates and set out learning outcomes required of medical students by 2011/12.

The medical leadership competency framework (MLCF)[2] was commissioned in 2006 by the department of health and jointly compiled by the NHS Institute for Innovation and Improvement, and the Academy for Medical Royal Colleges as part of a wider UK project called 'enhancing engagement in leadership'. This framework lists the key competences that medical students require to become involved in improving and delivering future health services. It also maps these competences to the TD09[2] outcomes.

Guidance has since been produced which describes how these competences can be integrated in the undergraduate curriculum.[1] Five key domains of competences are described: demonstrating personal qualities, working with others, managing services, improving services and setting direction. Each domain has four subsections (20 subsections in total) and each subsection defines four competences to be attained (80 competences in total). Figure 1 is a pictorial representation of the MLCF with the domains shown in the central circles and their four subsections detailed in the corresponding outlying boxes.

The guidance outlines the leadership knowledge, skills, attitudes and behaviours students need to acquire by the end of their training in order to attain each of the competences, and gives examples of learning activities that can be used to achieve this.

The full integration and implementation of an additional eighty competences within undergraduate curricula is challenging. Maximizing learning opportunities is therefore important. Knowledge of these opportunities is vital in planning curriculum changes to fulfill requirements for leadership teaching, and prepare students for the NHS of 2012.

Vallance *et al.*[3] in 2011 at Imperial College, London, have developed a toolkit designated 'iMAP' to map current curriculum learning

Figure 1
The Medical Leadership Competency Framework (adapted from MLCF[1])
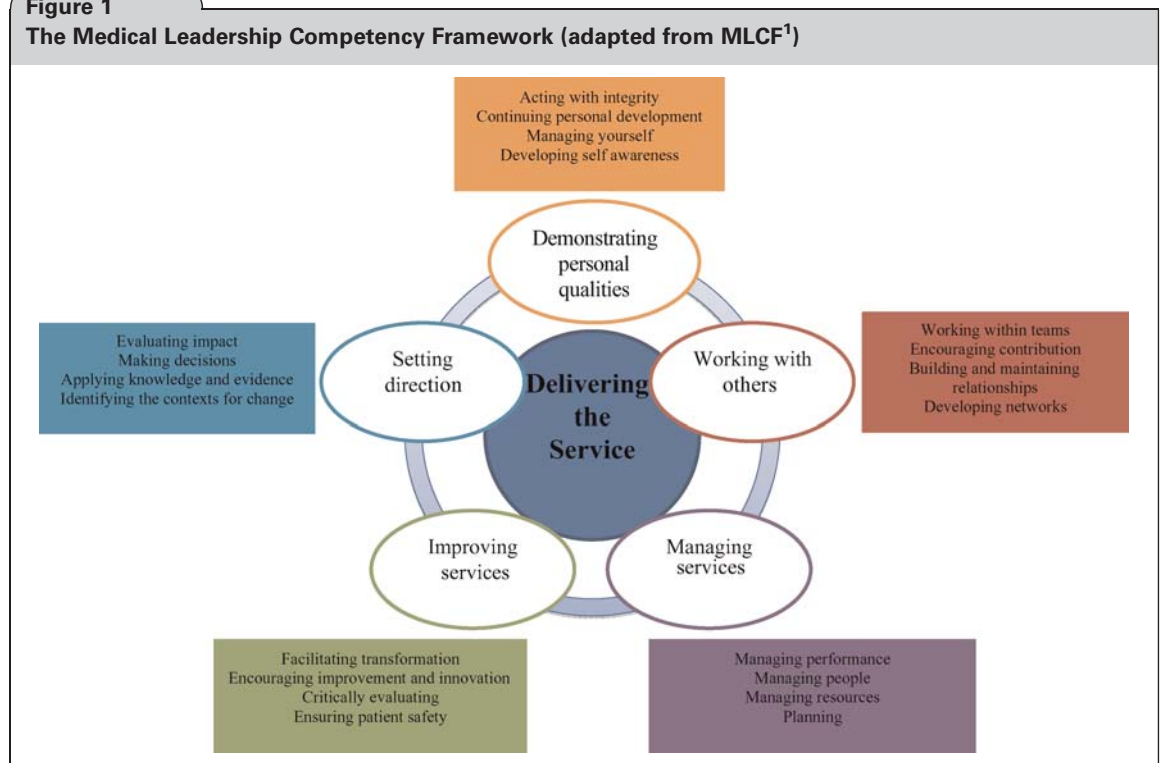
outcomes and assessment against TD09. However, the leadership outcomes are spread throughout TD09 outcomes and, therefore, are less easy to evaluate.

Using the MLCF, we aimed to design a tool that would enable the production of a leadership curriculum map showing where the MLCF competences are being taught. Information gathered from the tool can also be used to show how much teaching currently exists, and what learning methods are used. This information can be used to guide further curriculum development.

Objectives

To design a tool to explore current leadership teaching in an undergraduate curriculum, using the MLCF.

Design

A 20-item online questionnaire was designed.[4] Each item is based on a MLCF subsection, e.g. 'developing self awareness', and describes four related competences, e.g. (1) recognizing and articulating own values and principles, (2) identifying strengths and limitations, (3) understanding as to how own emotions and prejudices can affect judgement and (4) obtain, analyse and act on feedback from a variety of sources.

For each item, we asked:

Do you teach this? (yes/no)

How you do teach this? (Multiple-choice question, more than one answer allowed from the following: 'Discussion groups', 'e-learning', 'learning from others', 'lectures', 'practicals', 'role-play', 'self-directed learning' and 'written reflection'.)

Average length of time spent teaching each subsection? (Multiple-choice question, only one answer allowed from the following; 'up to 30 minutes', '30 minutes to 1 hour', '1–2 hours', '2–3 hours', 'more than 3 hours'.)

The questionnaire format, content and wording were validated by three independent reviewers and edited according to their suggestions.

Sixty-nine course leads for all courses were identified in the six-year course at Imperial College, London.

The questionnaire was distributed using Smart Survey.[5] Participants could access the questionnaire by clicking on a link within an explanatory email. Participants were aware that the questionnaire was not anonymous which was necessary given the purpose of the study.

The results were collated in an Excel spreadsheet. A curriculum map was created.

Results

There was a 78% questionnaire response rate (54/69), but we were able to extrapolate these results across the remaining courses to achieve a 100% response rate. This was possible because we ensured that we had received questionnaire responses from theme Chairs whose results provided an overview across many courses, even if the individual course leads had not replied.

The results show that all twenty MLCF domain subsection competences are taught across the curriculum. Figure 2 shows the leadership curriculum map produced from the results, which provides a pictorial overview of where leadership teaching occurs across years 1–6 at Imperial College, London.

The size of the bar for each of the subsection competences represents the percentage number of courses that teach that competence in that year.

The results from the questionnaires received can be easily pulled in to user-friendly spreadsheets which can be configured to provide more in-depth detail, e.g. to what extent each competency is taught (time spent) either in individual courses or across years, and what learning methods are used.

The subsection 'building and maintaining relationships' is the most taught area (68% of respondents). It is taught in each year of the curriculum including within basic science courses in year 1. The learning methods used are 'discussion groups' (67%) and 'learning from others' (61%). Forty-two percent of respondents reported that within their course, students spent more than three hours learning 'building and maintaining relationships'.

In contrast, only 4% of respondents teach 'evaluating impact' and it is only taught during the Fourth Year Intercalated BSc courses, predominantly in the Management BSc. It is taught using

Figure 2
Map of leadership teaching at Imperial College, London

Medical School Year	YEAR 1	YEAR 2	YEAR 3	YEAR 4 - BSc	YEAR 5	YEAR 6
MLCF competency						
Demonstrating Personal Qualities						
1.1 Developing self awareness						
1.2 Managing yourself						
1.3 Continuing professional development						
1.4 Acting with integrity						
Working With Others						
2.1 Developing networks						
2.2 Building & maintaining relationships						
2.3 Encouraging contribution						
2.4 Working within teams						
Managing Services						
3.1 Planning						
3.2 Managing resources						
3.3 Managing people						
3.4 Managing performance						
Improving Services						
4.1 Ensuring patient safety						
4.2 Critically evaluating						
4.3 Encouraging improvement & innovation						
4.4 Facilitating transformation						
Setting Direction						
5.1 Identifying the contexts for change						
5.2 Applying knowledge & evidence						
5.3 Making decisions						
5.4 Evaluating impact						

mainly 'lectures' (80%) along with 'discussion groups' (60%), 'practicals' (60%) and 'self-directed learning' (60%). Sixty percent of respondents said they spend more than three hours teaching 'evaluating impact' within their own course.

Overall, 'discussion groups' are most widely used by respondents to teach leadership, while 'e-learning' is used the least.

Conclusions

This study describes a simple questionnaire for exploring leadership teaching within an undergraduate medical school. We have been able to show evidence of TD09 compliance at Imperial College, London, with leadership teaching occurring across the curriculum, including in basic science courses.

This tool may well be useful for identifying learning opportunities and signposting teachers and students, as well as gathering interested parties from various teaching faculties to promote further integration of leadership teaching.

The high response rate achieved is likely to reflect its ease of use by participants. The key requirement is Internet access.

There are limitations to the tool. While with a 78% response rate we were able to extrapolate across courses where questionnaires were not returned, the results may not be 100% accurate. It is also difficult to validate the results received from the individual course leads. There may well be variability between course leads, with some

answering 'yes' to domains without there being much evidence. The questionnaire is also open to interpretation bias as it was written using technical 'leadership speak' taken from the MLCF guidance. To overcome this, we first piloted the survey among peers to ensure that it could be easily understood, but it is possible that bias still exists.

However, our findings are corroborated in several ways by Vallance's iMAP,[3] which suggests evidence of the validity of our tool. On the iMAP 'continuous personal development' and 'team-working' are well represented in years 3, 4 and 6, whereas 'managing services' is less well represented. This is also shown on our leadership map.

Although we have shown leadership teaching occurs, we are not able to comment on its quality or confirm what students learn. It also does not provide information on the 'hidden curriculum', e.g. extra-curricular activities that may enhance student's leadership skills. These are unanswered questions for future research.

The next steps at Imperial College, London might be to research what medical students learn about leadership during their undergraduate courses, in addition to exploring what is learnt in the 'hidden curriculum'. Medical students are encouraged to complete e-portfolio entries relating to extra-curricular activities and learning, and an analysis of these entries may provide information that can help guide future curriculum design relating to leadership development.

References

1 General Medical Council. Tomorrow's Doctors 2009
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3 Vallance A, Higham J. A toolkit to meet Tomorrow's Doctors standards. *Med Educ* 2011;**45**:508–35
4 Powell S, Verma A. A questionnaire to Explore Leadership Teaching in an Undergraduate Curriculum. Imperial College 2011. See http://www1.imperial.ac.uk/resources/ABF17FD2-3C5E-448E-996A-80059C7E9EC8/mapping20leadership20teaching20survey4.pdf (last accessed 1 July 2012)
5 See http://www.smart-survey.co.uk/ (last accessed 1 July 2012)