AMEE guide No. 12: Multiprofessional education: Part 1—effective multiprofessional education: a three-dimensional perspective

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SUMMARY The question with multiprofessional education is not whether it is effective or not. Rather it is in what circumstances can this important educational strategy be made effective? Multiprofessional education can be viewed as a three-dimensional model. The extent to which the approach to multiprofessional education adopted matches the context for the learning and the curriculum goals provides an indication of the success of developments in this area. Approaches to multiprofessional education can be described as 11 steps in a continuum with uniprofessional education at one end of the spectrum and transprofessional education at the other. The three-dimensional model offers a tool which can facilitate the planning and implementation of multiprofessional education. It is useful also for analysing and evaluating case studies in the field of multiprofessional education.

Is multiprofessional education effective?

The multiprofessional healthcare team and multiprofessional education are very much on today’s agenda. But so also are cancer, drug abuse and environmental pollution. This is not to suggest that multiprofessional education is proliferating uncontrollably like a cancer, that it is damaging to those engaged in it like drug abuse, or that it is a potential hazard to the learning environment in the same way as nuclear energy is to the living environment. There are, however, undoubted sceptics who have legitimate concerns about multiprofessional education and who feel that time and effort invested in this approach to education could be used more profitably for other purposes. Other workers in the field are less certain and have passed the Scottish verdict of ‘not proven’, perhaps filing the concept in a drawer labelled ‘an interesting idea to keep pending further developments’. A number of healthcare professionals, however, have pursued multiprofessional education energetically and enthusiastically.

What, then, is the truth? Does multiprofessional education offer an effective learning strategy? The answer is yes and no. Yes if it is used appropriately, no if it is used inappropriately. The important question that follows is: what is the appropriate use of multiprofessional education? To answer this question, one has to take a three-dimensional perspective (Figure 1). The three dimensions are:

1. the context in which the multiprofessional education is to be applied. This includes the phase or stage of education, the category of students, and the learning situation or educational format;
2. the curriculum goals. These are the expected outcomes of the training programme;
3. the approach to multiprofessional education adopted. Multiprofessional education is not one entity, but a continuum with a number of clearly identifiable steps or stages.

The appropriate use of multiprofessional education requires the matching of the approach to multiprofessional education adopted with the curriculum goals and with the context of the learning.

This paper looks in turn at each of the three dimensions—context, goals and approach to multiprofessional education. It offers an insight into multiprofessional education through a description of 11 stages in the continuum between uniprofessional education at one extreme, and transprofessional education at the other.

The context for multiprofessional education

The challenge presented by multiprofessional education

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Perhaps not surprisingly, therefore, the community has been the context for much multiprofessional education activity. In any of these settings, multiprofessional education may be part of a core course or an optional course or special study module.

The topic or subject to be covered is another aspect of the context. Perhaps not surprisingly, there has been an emphasis to date on topics where teamwork plays an important part in clinical practice and on areas or themes which cut across the boundaries of different professions. Examples are medical ethics, learning disability and palliative care.

A fourth aspect of the context is the learning approach. Examples of different learning contexts are small-group work, lectures, distance learning or problem-based learning. Special learning facilities such as clinical skills laboratories or units have been developed to enrich students' learning and these too have served as a focus for multiprofessional education. Problem-based learning offers particular attractions as a context for multiprofessional education. “It may be especially useful in multiprofessional education” suggest Brandon & Majumdar (1997), “as it promotes co-operation as opposed to competition between participants”.

The goals

A second factor to be considered with regard to multiprofessional education is the curriculum goals. In considering multiprofessional education, careful thought needs to be given, Byrne (1991) suggested, to the outcomes. What is it we want to achieve? Common goals of multiprofessional education are collaborative skills and the ability to work as a member of a team. The aims of multiprofessional education may go beyond such generic or transferable skills. In a report from Texas, for example, staff expressed their view that “joint training helps medical students and residents learn better communication skills, and enables nursing students to pick up more scientific expertise” (Mangan, 1997). Thus, multiprofessional education may have as its goals:

(1) core competences common to the different professions. These may relate to knowledge, skills, attitudes and to a better understanding of more complex health problems;
(2) the development of a multi-skilled workforce able to take on other professions’ work with a breakdown in professional boundaries and demarcations;
(3) the development of a familiarization and understanding of professional roles and an appreciation of healthcare from the perspective of different professions;
(4) skills relating to teamwork, collaboration and communication which will facilitate the different professions working together in the healthcare team.

The choice of the most appropriate approach to multiprofessional education will vary with the goals or outcomes expected. This can be illustrated in relation to the eleven goals of the Dundee undergraduate medical curriculum (Table 1). The most appropriate approach to multiprofes-
Table 1. Dundee curriculum goals.

| (1) A high level of professionalism and understanding of the role of the doctor within the health service |
| (2) A knowledge of the basic and clinical sciences relevant to the practice of medicine |
| (3) Competence in clinical skills |
| (4) An ability to communicate appropriately |
| (5) Ability in clinical reasoning and judgement |
| (6) Competence in practical procedures |
| (7) Appropriate attitudes and ethical stance |
| (8) Awareness of health promotion and disease prevention |
| (9) Ability to investigate and manage a patient |
| (10) Ability to handle and retrieve information |
| (11) An aptitude for personal development and a demonstration of appropriate transferable skills |

Sional education designed to develop suitable attitudes or ethical thinking, for example, may be different from one designed to allow professions to develop a shared core knowledge base or understanding of the scientific basis of clinical practice. The development of multiprofessional facilities for clinical skills training has attracted some attention. The approach may run into problems, however, if the objective is simply the mastery of a practical procedure. In this situation tensions may arise if the different professions see themselves competing for the available training resources in the clinical skills unit. There has to be some added value if the multiprofessional aspect of training is to be successful. This has to be explicit and may include the commonly stated goals for multiprofessional education of the development and understanding of the different professional roles and the principles of teamwork.

Multiprofessional education, if delivered appropriately, can certainly contribute to a better understanding of some aspects of medical practice. The success of a multiprofessional programme in obstetrics which involved medical students and midwives was attributed, in part, to the fact that it not only addressed the issues of teamwork and professional roles, but also allowed the students from the different professions to acquire a better understanding of the issues relating to labour through a sharing of their different perspectives. The midwives contributed a better understanding of the practical issues, and the medical students an understanding of the underlying physiology and biochemistry (Mires et al., 1998).

The approach to multiprofessional education

Different terms have been used to cover the concept of multiprofessional education. The list includes multiprofessional education, interdisciplinary education, shared learning, transprofessional education and others. The different nomenclature results, at least in part, from the fact that the educational philosophy underpinning the approach comprises a range of different concepts and different approaches whereby different professions can, in some way, learn together. The World Health Organization (WHO, 1988) have defined multiprofessional education as “the process by which a group of students (or workers) from the health-related occupations with different educational backgrounds learn together during certain periods of their education, with interaction as an important goal, to collaborate in providing promotive, preventive, curative, rehabilitative and other health-related services”. This definition may be unduly restrictive and does not reflect the different facets or approaches to multiprofessional education that can be adopted. Indeed, distinctions between different approaches to multiprofessional education and the terms used have become less clear cut (Leathard, 1997). Rogerson & Harden (1998), for example, have demonstrated that many of the advantages of learning alongside students from other professions can be gained by learning from working with teachers or staff from other professions. It has to be recognized, however, that the use of different terms interchangeably and indiscriminately is confusing.

The same issues of nomenclature arise in integrated or interdisciplinary teaching and learning where students look at the subject as a whole rather than studying separately each of the disciplines such as anatomy, biochemistry, medicine, pathology, surgery or psychiatry. Harden (1998) has described different approaches to integrated teaching and learning with 11 steps in a continuum between discipline or subject-based teaching at one end of the spectrum, and integrated or multi-disciplinary teaching at the other. The approach can be modified for use in the context of multiprofessional education. A summary of the classification is given in Table 2.

(1) Isolation

Isolation is at one end of the spectrum. There is no contact between the different professions with regard to conceptualizing, planning or implementing their respective teaching programmes. Any reference or consideration given to the role of other professions as part of the programme of teaching and learning is coincidental and not planned.

(2) Awareness

At the awareness level, there is no formal collaboration between the different professions in the teaching programme. Each profession, however, has an awareness of the others’ roles and this may be reflected in the respective teaching programmes.

(3) Consultation

At the consultation stage, there is discussion between the different professions and this may impact on the teaching programme. The programme for each profession remains separate and distinct but may demonstrate a greater understanding of the roles of other healthcare professions in relation to the topics under discussion. An example in a medical course is the cardiovascular component, where the roles of the different members of the healthcare team are made explicit as part of the discussion on rehabilitation.

(4) Nesting

There is still no joint or shared teaching at this stage of
Table 2. The steps in multiprofessional education.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1 Isolation</td>
<td>Each profession organizes its own teaching and is unaware of what is taught or learned in other professions.</td>
</tr>
<tr>
<td>2 Awareness</td>
<td>Teachers are aware of what is covered by other professions but no formal contact with regard to conceptualization, planning or implementation of teaching programme.</td>
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<tr>
<td>3 Consultation</td>
<td>Consultation about the teaching programmes between teachers from different professions.</td>
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<td>4 Nesting</td>
<td>Aspects relating to the work of other professions are included in otherwise uniprofessional courses.</td>
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<tr>
<td>5 Temporal Co-ordination</td>
<td>Timetable arranged so that two or more professions can be scheduled for the same learning experience, e.g. a lecture but little formal interaction during the session.</td>
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<tr>
<td>6 Sharing</td>
<td>Two professions plan and implement joint teaching, with interaction between the professions in one part of a course. The remainder of the course has a uniprofessional focus.</td>
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<tr>
<td>7 Correlation</td>
<td>Sessions are scheduled in the programme for multiprofessional consideration of topics in an otherwise uniprofessional course.</td>
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<tr>
<td>8 Complimentary programme (mixed programme)</td>
<td>Multiprofessional teaching runs alongside uniprofessional teaching.</td>
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<tr>
<td>9 Multiprofessional</td>
<td>The emphasis in the course is on multiprofessional education. Each profession looks at themes from the perspective of its own profession.</td>
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<tr>
<td>10 Interprofessional</td>
<td>Each profession looks at the subject from the perspective of its own and other professions.</td>
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<tr>
<td>11 Transprofessional</td>
<td>The multiprofessional education is based on the experience of the real world which provides a filter for the students' learning.</td>
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Multiprofessional education. A serious effort is made, however, to provide students in one profession with a perspective and understanding of another profession. Teachers from the second profession may contribute to the educational programme. An example is a special study module in nursing studies for medical students. Second- and third-year medical students spend a two-week special study module working in the nursing context and experiencing a range of nursing activities and situations. The teachers or tutors are senior nurses (Rogerson & Harden, 1998). A second example is a distance learning programme or instructional text in which the text is written for one profession but included in it is an account of the topic from the perspective of one or more other professions and an account of their role.

(5) Temporal coordination

Temporal coordination represents the first step towards joint or shared teaching. It is associated with changes in the timetable so that two or more professions can be scheduled for a similar experience at the same time. An example is curriculum timetabling which allows two or more professions to attend a lecture common to the different profes-
<table>
<thead>
<tr>
<th>Uniprofessional</th>
<th>Multiprofessional</th>
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<tbody>
<tr>
<td>Lack of awareness</td>
<td>Empathy and appreciation</td>
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<tr>
<td>Different content</td>
<td>Comparative content</td>
</tr>
<tr>
<td>Received learning</td>
<td>Interactivity between professions</td>
</tr>
<tr>
<td>Classroom</td>
<td>Clinical practice</td>
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</table>

**Figure 2.** The continuum of multiprofessional education.

The attendance of students or postgraduates from different professions at the same lecture, suggested Horder (1996) however, “serves only a very limited purpose”.

The feature of temporal coordination is that the different professions share in the learning programme but there is no interaction between them, other than what happens coincidentally and informally.

One advantage of temporal coordination may be economies of scale and the maximization of the use of learning resources. An element of joint planning between the professions is required. This may be less difficult and time consuming, however, than that required in higher levels of multiprofessional education where there is a need for “give and take and for sensitivity regarding one another’s preoccupations before formulæ can be found to which all can subscribe” (Barr, 1996).

An example of temporal coordination in distance learning is a programme on clinical audit produced in Dundee. This initiative was designed to update healthcare professionals on the subject of clinical audit. Separate volumes were produced at the same time for doctors, nurses, pharmacists and the professions allied to medicine. Each was based on the same principles, design features and content but contained elements to suit the needs of the different professions.

**6) Shared teaching**

The additional feature in shared teaching is the interaction between the different professions as part of the scheduled teaching programme. This collaboration extends, however, to only one well-defined and circumscribed part of the educational programme or course. An example is a programme on medical ethics or spirituality. Shared teaching may cover a specific type of learning opportunity such as the shared use of simulators or standardized patients in a clinical skills learning laboratory.

There is no relationship, at this point on the continuum, between the part of the course in which there is shared teaching and the remainder of the course which has a uniprofessional focus.

**7) Correlation**

The overall emphasis, at the correlation stage of multiprofessional education, remains on uniprofessional education. There are scheduled in the curriculum, however, regular and well-defined multiprofessional sessions. These consider, from a multi-professional perspective, topics addressed in the uniprofessional teaching which occupies the major part of the course. Correlated teaching sessions are often arranged to address issues relating to professional boundaries or interprofessional differences.

Each profession, for example, may have its own separate system-based course. The timetable may be arranged in such a way, however, that on one afternoon each week the different professions come together to examine multiprofessional aspects of the system-based teaching and how the different professions interact in the area.

**8) Complimentary**

In the complimentary stage of multiprofessional education there is emphasis in the course on both uniprofessional and multiprofessional education. In the curriculum, each compliments the other. This stage represents a mixed economy which aims to get the best of both uniprofessional and multiprofessional education.

Students may spend about half of their time in uniprofessional and half of the time in multiprofessional education in any one course. In a problem-based learning curriculum, students might for example take part in multiprofessional small-group work and share some of the learning experiences such as the formal lectures. Other parts of the programme, however, including practical clinical experiences and learning resource material, may be uniprofessional.
Figure 3. Different stages in the continuum related to the learning situation and whether students from different professions are taught together or separately.

(9) Multiprofessional education

The emphasis, in this stage, is on multiprofessional education with little, if any time, in a course devoted to uniprofessional activities. Each profession, however, looks at the subject from the perspective of its own discipline and the role or impact, if any, of the different disciplines on the subject. In problem-based learning, for example, each discipline looks at the problem and discusses its approach to it from the perspective of its own discipline. Students learn by tackling together a common problem, but from the perspective of their own discipline (Areskog, 1994).

(10) Interprofessional education

In interprofessional education, a distinction is not made between the different professions of the students. Students from each profession look at the subject from the perspective of other professions as well as their own. Medical students, for example, look at the problem from a nursing as well as a medical perspective, and in a role-playing situation may play the part of the nurse as well as the doctor. Students learn together, with the objective of promoting collaborative practice.

In interprofessional education one has moved from a different content for each discipline and from a common content where the similarities of the different disciplines are discussed, to a comparative content where the differences as well as the similarities between the professions are discussed (Barr, 1996). This implies a greater level of interactivity between the different professions during the learning (Barr, 1994; Leathard, 1994). “We need to make it very clear to professionals” suggested Monica Vanclay (1997), “that interprofessional education is about people learning with, from, and about each other”.

Some workers have made a different distinction between interprofessional and multiprofessional education on the basis of the number of professional groups involved (Parsell & Bligh, 1998). Interprofessional education is used to describe learning activities involving two professional groups and multiprofessional education to describe learning activities involving three or more professional groups. This is a less helpful distinction in terms of the continuum of multiprofessional learning, although it is important to note the number of professional groups involved.

(11) Transprofessional education

In transprofessional education, the multiprofessional education takes place in the context of the clinical practice of medicine. The window for the multiprofessional education is real life and not the classroom. Students function as members of the healthcare team in the delivery of care. An example is the training wards used at the University of Limburg where students, whatever their background, share in the management of patients admitted to the ward for treatment (Wahlstrom et al., 1997). Such practice placements, however, may be difficult and time consuming to negotiate (Anderson et al., 1992; Barr, 1996).

The continuum

Barr (1996) identified the need to develop a typology or framework within which examples of multiprofessional education could be studied. The continuum offers such a framework. Eleven steps are described in the continuum from uniprofessional to transprofessional education. Stages in the continuum can be related to the learning situation and to whether students from different professions are taught together or separately (Figure 3). The differences as one moves along the spectrum are summarized in Figure 2. These include a move from a different content for each discipline, through an emphasis on similar content to an appreciation of comparative content and the differences as well as the similarities between the professions; a move from received learning to learning with interaction between the different professions; a move from theoretical learning to experience related to clinical practice and the real world of the healthcare professional; an increasing awareness of the role of other professions with the development of an understanding and empathy, and an appreciation from the perspective of the other profession.

Conclusion

If multiprofessional education is to be effective, one has to take a three-dimensional perspective. The choice of multiprofessional strategy should be matched with the context for learning and the curriculum goals to be achieved. An approach to multiprofessional education which does not meet the needs of the learning context and the curriculum goals is unlikely to be effective.

Imagine you are planning a journey. In order to choose the most appropriate method of transport, you must have a clear idea about the destination and an understanding of the requirements and capabilities of the travellers and the terrain over which they will be passing. Air transport may be the answer for some journeys, but may be inappropriate
in other situations. In the same way, when planning multiprofessional education one has to choose an approach appropriate to the goals and to the context. Multiprofessional education may fail not because the concept is flawed, but because an inappropriate approach has been adopted.

The likelihood of success with a multiprofessional education programme can be predicted from the formula:

\[ S = (B - D) \times E \]

Where \( S \) = the likelihood of success of the multiprofessional programme, \( B \) = benefits to be gained from the multiprofessional education programme, \( D \) = disadvantages to be encountered in implementing the programme, and \( E \) = the ease of the process of implementing the multiprofessional activity.

In implementing multiprofessional education, the gain, i.e. the extent to which the benefits outweigh the disadvantages, and the ease of the process need to be considered. This is reflected in the top right quadrant in Figure 4 where the gain and the ease of the process are both high, and multiprofessional education is likely to be a "sure winner". Situations in the top left quadrant, where the gain is high but where there is a greater level of difficulty, may still be worth the effort. Situations in the bottom right quadrant, where multiprofessional education can be relatively easily implemented but where the gains may not be high, may nonetheless be useful as an introduction or starter to multiprofessional education. Situations in the left lower quadrant, where there is a poor gain and which are hard to implement, are difficult to justify. If not discarded completely they might be postponed to look at again at a later date.

A key factor in this assessment of success is the likelihood of achieving the expected gain from the multiprofessional education. This can be predicted from the extent to which the three aspects are matched in the multiprofessional model described—the curriculum goals, the learning context and the approach to multiprofessional education.

This three-dimensional model for multiprofessional education offers a tool to support the planning and implementation of multiprofessional education and to facilitate communications about multiprofessional education and the evaluation of case studies in the field.

References


