Techniques in medical education

Contract learning, clinical learning and clinicians

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Summary

Current trends in education and training emphasise that learners, whether they are school children, students or adults, need to acquire generic skills and personal characteristics which will enable them to become independent self-directed learners. This will enable them to continue the process of learning throughout their lives. Recent recommendations for the reform of undergraduate medical education, for training of hospital doctors and general practitioners, and the higher profile now being given to continuing medical education, reflect the strength of this particular educational current sweeping through all levels of medical education. Learning contracts, developed through negotiation between a teacher and a learner, are especially effective educational tools for stimulating independent learning. This paper examines the theoretical basis of contract-learning and its relevance to clinical settings.

Keywords: education, contract learning

The need for new skills

Tomorrow's doctors and the Calman report are the most recent catalysts for change in thinking about medical education at postgraduate and undergraduate levels, respectively.^{1,2} The documents stress the changing role of the modern doctor and the need for training to be restructured to provide the doctors that people really need. Populations with rapidly changing healthcare needs expect doctors to meet their increasing demands for advanced treatment in a modern environment. Rather than assimilating a store of largely irrelevant information, doctors now need to develop learning skills which will enable them to sift out and acquire information as and when the need arises.

UNDERGRADUATE EDUCATION

Traditionally, medical education has been characterised by 'teaching' methods rather than 'learning' methods, that is, by placing the teacher at the focal point of learning. Subject-based information is transmitted to an audience of 'passive' learners. At undergraduate level, students find that they have great difficulty in understanding relationships between scientific concepts acquired in separately taught disciplines, and relating them effectively to clinical practice. This situation is perpetuated by an examination and assessment system that stresses the need to memorise a large number of facts, forcing students to become 'dependent' rather than 'independent' learners.³

It is now widely accepted that this is inadequate preparation for training for professional practice in a changing social and medical climate. Many medical schools are now introducing student-centred learning methods into their courses to meet the recommendations of *Tomorrow's doctors*. The intention is to equip students with the ability to learn throughout their professional lives.

POSTGRADUATE EDUCATION AND TRAINING

Much has been written in recent years about the problems of senior house officer training in the UK. Attempts to improve the situation have included the introduction of learning contracts between educational supervisors and trainees managed at local level by the Clinical Tutor in each Trust.^{4,5} Learning contracts raise the quality of education for hospital doctors by the introduction of a structure allowing training to be monitored. However, the introduction of a formal learning contract as a system of accountability and control, sits uneasily beside the idea of the autonomous learner.

PROFESSIONAL PRACTICE

Independent professionals such as hospital specialists and general practitioners are 'self-directed' in the broad context of continuing professional development. They must keep up-to-date with advances in medicine in their chosen field and at the same time acquire management and information technology skills to function effectively in the changing context of national healthcare. They select appropriate ways of adding to their knowledge by, for example, attending courses, reading journals and discussing problems with their peers. Ideally, they assess the usefulness of what they have learned, adding it to their growing expertise, whilst rejecting what is irrelevant to their professional practice. Evidence from controlled studies of the effectiveness of continuing medical education shows that, in general, doctors learn what they feel is important to them. This does not always match the learning necessary to meet the needs of patients.⁶ The application of contracting skills to identify learning objectives and develop self-assessment will ensure that independent learning is more effective and relevant to the needs of the health service.

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Contract learning and learning contracts

Contract learning is not a new idea and is being increasingly used to improve student learning in universities, and in postgraduate and continuing education for many professions.^{7,8}

THE PRODUCT OF CONTRACT LEARNING

An educational contract can be agreed and negotiated and remain implicit without being formally written down. As a formal product, a learning contract is a document drawn up by a student and his or her teacher or adviser. Such documents are known by a variety of titles, for example, ‘learning agreements’, ‘action plans’, ‘study plans’, or ‘personal development plans’. The document outlines the contract agreed between a teacher or mentor and learner, a trainer and a trainee, or a consultant and junior doctor. Contract documents may vary in size, style and content according to the needs of the learner and the context in which they are to be used. Whatever their size and format, contract documents specify what will be learned (objectives), how it will be accomplished (organisation and resources), an agreed period of time for completion (timescale), and the evaluation and assessment criteria to be used (validation evidence).⁹ A contract document helps by underlining and describing all stages of the learning process clearly.

THE PROCESS OF CONTRACT LEARNING

As a process, contracting is a ‘continuously re-negotiable working agreement between the student and teacher which emphasises mutuality in decision-making and learner self-determination in relation to learning outcomes’.¹⁰

The process is the practical day-to-day achievement of the objectives contained in the contract document. Opportunities are provided for learners to negotiate with their teachers or supervisors, the knowledge and skills they need to acquire during their course or attachment. The negotiations suggest how new learning is to be acquired, restrictions and benefits offered by the learning environment, and the availability and use of a variety of resources. Timescales are set for the realistic completion of learning objectives and, most importantly, agreements reached against what criteria the quality of the learning is to be assessed and validated. A key feature of the process is the opportunity for both learner and teacher to re-negotiate the contract, according to changing circumstances and needs. Regular feedback between teacher and learner, and ‘formative’ assessment, provides opportunities for strengths and weaknesses to be identified and addressed. This process teaches learners how to assess themselves and their performance, to acquire important skills of negotiation and communication, and develop enquiry skills essential for future professional practice. A focus on positive rather than negative aspects of learning helps to develop personal characteristics such as confidence and self-esteem.

ASSESSMENT

The use of ‘formative’ assessment (ie, providing feedback on learning progress in a non-threatening way) reduces the need for extensive end-point (or summative) assessment. Remedial action is implemented on a regular basis through a continuing process of re-negotiation. ‘Summative’ assessment (pass/fail) is still needed, however, to establish whether the required standards have been reached, not only by individual learners, but also by those education and training organisations responsible for achieving and maintaining standards demanded by professional bodies.

Contract learning and education theory

The process of negotiation of learning is a natural response to a learning situation. When faced with the need to learn, we make decisions about our learning and judge our success by how far we have satisfied our personal learning objectives. The personal aspect of a learning contract is a key element in professional education because it influences the motivation and performance of individuals. It is essential that these personal issues emerge and are taken into account when developing a learning contract.

ADULT LEARNING

Contract learning embodies a number of guiding principles relating to adult learning.^{11–13} ‘Self-direction’ explodes the myth that for learning to take place a teacher must ‘teach’. In traditional settings, a teacher is regarded as the only legitimate source of knowledge, deciding our learning aims and objectives, and how knowledge is structured, delivered and assessed. This is a powerful,

Learning contracts specify:

- what knowledge, skills and attitudes have to be learned
- the learning resources and strategies to be used to achieve them
- the timescale for their achievement
- the evidence to support that they have been accomplished
- how this evidence is to be assessed and validated

Box 1

controlling relationship in which the teacher makes all the decisions. The main difference between traditional and self-directed learning is the degree to which responsibility, power and control for learning is handed over to the learner. Ideally, handing over responsibility is a gradual process as learners acquire the skills needed to become self-directed, and teachers recognise that a learner's personal experiences must be the starting point for future learning.^{14,15} The ultimate goal is to move learners gradually from a position of dependence to one of independence.

LEARNING INDEPENDENCE

Independent learners feel more confident and competent with the contracting process and are often challenged to do their best by the targets they set. Dependent learners who have experienced only 'telling' methods of teaching and who are unused to looking after themselves in terms of learning will feel frustrated and anxious at first. They will be confused by the apparent lack of structure and guidance about how they should achieve objectives or how they will be assessed. There is a danger that unimaginative contracts will result without the careful support and encouragement of a skilful teacher. The learner will quickly become bored and disinterested, so fuelling feelings of tension and resistance. The teacher should be prepared to provide more intensive support early in the process for this type of dependent learner.

EXTERNAL NEEDS AND INTERESTS

When learning takes place within an organisation and objectives are designed to improve professional competence as well as develop personal skills, learners cannot be completely self-directing. Learners and teachers will need to take into account the requirements of the organisation, professional bodies and populations. The clarification of all aspects of professional work-based learning makes it less likely that employees will be exploited and that learning is more closely focused on a balance of real as well as perceived need. Whilst initial resistance to contract learning is expected, increasing familiarity with the method will establish its credibility as an effective and enjoyable learning experience, and acceptance will follow.

Product and process - a partnership

The relationship between the learning contract (product) and the contract learning process, is central to the effective working of contracting as an educational tool. The contract document must be carefully designed to encourage personal learning and evaluation and the process must be clearly identified in the contract document.¹⁶

When too much emphasis is placed on the contract document, or it is introduced with little understanding of the process, techniques, and skills involved, imagination and creativity will be stifled. The resulting lack of 'ownership' will lead to resentment and demotivation on the part of learners and a lack of commitment by teachers. Alternatively, too great an emphasis on process and the lack of a visible contract, puts at risk the teacher's ability to discriminate between learners and their individual needs. Without a contract document, the application of professional standards and development of valid and reliable assessment and evaluation methods, becomes extremely difficult.

Contract learning in clinical settings

Contract learning is an effective way of meeting the differences between individual doctors. This is particularly relevant to postgraduate medical education where trainees come from a wide variety of backgrounds, bringing with them a broad range of personal and medical experiences. These include overseas doctors from differing cultural and educational backgrounds at varying stages of maturity where their personal goals and career aspirations are as varied as the 'learning baggage' they bring with them to their work. There is no such thing as the 'standard' trainee in a 'standard' learning situation.

All adults learn best when they see that what they are doing is relevant, bringing them nearer to achieving their own goals, as well as the needs of service. In this way their personal learning contracts are recognised and motivation is generated. It makes sense to find ways of educating and training doctors that take all of these factors into account.

PROVIDING A SERVICE

Trainees provide an essential service where the assurance of high quality care to patients is the first priority. Trusts, general practitioner training practices and

community health centres, who are all involved in training doctors, have an obligation to provide this. Contract learning can accommodate these varied needs and interests, and the continuously changing nature of day-to-day work with patients.

CURRENT USE OF CONTRACT LEARNING

Both product and process approaches to contracting are readily identifiable in medical education. The first, (as a product) has been extensively introduced in postgraduate training in the UK as part of the shorter, more structured training envisioned by the Calman report. Junior hospital doctors agree with their educational supervisors a learning and personal development plan to guide their work during their hospital posts. In many cases these plans have a formalistic feel to them. As a process, contract learning is widely used during the general practice year of vocational training when random case analysis and techniques based on the consultation are the principal tools used to identify learning needs, assess progress and to provide feedback.¹⁷

In continuing medical education for general practice, portfolio-based learning has recently been introduced by the Royal College of General Practitioners with general practitioners ‘contracting’ with tutors to define a personal learning pathway.¹⁸ Discussions are underway in the UK about an obligatory programme of learning negotiated with local mentors.¹⁹ Activities such as portfolio development, audit, research, and practice visits may be used as the criteria for re-certification of general practitioners.

In undergraduate education, the most obvious use is in problem-based learning (previously reviewed in this Journal) with students striking learning contracts with their peers and group tutor as the engine of the tutorial process.

In nurse education, contracting has been a major strategy for many years both at degree level and in practical work, especially in N America.^{20–22} Evidence from these evaluation and assessment studies suggests that learning contracts are effective learning tools that can promote skills valuable to healthcare professionals as well as in medical education.^{23–25} They have a number of key features shown in box 2.

Features of a learning contract

- a learning plan is initiated and agreed between the trainer and trainee and set out in a ‘learning contract’.
- unlike a legal contract, a learning contract is not set in stone. All aspects of the learning contract are re-negotiable. Both trainer and trainee must be prepared to be flexible and adapt the original aims and objectives to take into account changing circumstances when necessary.
- it involves changes in attitudes. Both the trainer and the trainee must be fully committed towards fulfilling the particular responsibilities on which they have agreed. Anything less will result in the contract breaking down with unfavourable consequences for learning.
- it recognises the individual differences between learners so each contract is negotiated separately, on a one-to-one basis. Although they are designed around the same basic principles, because they meet individual needs, and are individually tailored, each contract is different.
- it involves the acceptance of a set of educational principles that re-orientates learning and re-defines the roles of both trainer and trainee.
- it is context specific. Learning is not only theoretical but has to have a practical and early application to a real-world situation if it is to be seen as relevant by learners. Learners come to realise the importance of other people, activities and situations as learning resources.

Box 2

Benefits of contract learning

Learning contracts allow the doctor to learn independently in a supported environment and without risk to patients. Ideas and theories can be discussed and facts and skills checked before use. Differences in individual learning preferences can be recognised, and appropriate responses by the educational supervisor will ensure that learning is not only relevant, but also meaningful to the individual doctor. Enthusiasm and interest thus generated will foster and stimulate the desire for further enquiry. The resources used for learning are broadened and the views of one particular teacher can be balanced by those of others, as well as by reading and discussion with peers. The doctor’s imagination is stretched as a wider variety of resources is identified and used. Above all, learning contracts build on strengths and allow weaknesses to be specifically addressed. Day-to-day working problems are used as the basis for learning and lessons learned can be quickly re-applied in a clinical context.²⁶ Feedback about personal development is fundamental to professional growth, and an open and trusting relationship in the contracting process enables personal concerns and career issues to be incorporated.

New roles for trainers and trainees

To build a trusting and empathic relationship with and between trainees is of vital importance. Teachers must have highly developed interpersonal skills and provide an environment that is both physically and emotionally comfortable.

Although contract learning is a negotiated process, each participant needs a different set of skills. The teacher’s role is no longer one of ‘telling’ (although sometimes it is appropriate) or ‘controlling’, but becomes one of ‘managing’ or ‘facilitating’ the learning experience. In deference to this new role, teachers may sometimes be called facilitators or mentors. Their role becomes one of helping learners to be active participants by involving them in planning, carrying out and evaluating their learning experiences. Relinquishing their previous role of ‘expert’ can lead to a sense of loss and anxiety for some teachers. Many medical teachers find that being prepared to respond to questioning, to work with a young doctor (some refer to this as ‘co-learning’) and to tolerate experiment and initiative can be very rewarding. Doctors are guided towards wider learning opportunities and encouraged to see themselves, their peers and their teachers as rich learning resources. They come to see each experience, both past and

Barriers to implementing contract learning

- teachers and learners are reluctant to change practices
- teachers generally teach as they were taught
- training is needed to support independent learning
- degree of institutional support
- inadequate materials, activities and assessment methods
- teachers feel professionally 'deskilled' and threatened by giving up control
- learners feel inadequate and confused when confronted by different learning methods
- contract learning is time consuming to introduce and maintain
- interpersonal relationships may be obstructive or difficult
- external pressures and demands on time and resources
- the ideological assumptions that underpin traditional medical teaching and practice are questioned

Box 3

Summary points

- Contract learning:
- recognises individual differences
 - uses past experience as the starting point for learning
 - considers the aspirations and personal goals of learners when planning
 - is a continuous negotiable process
 - involves changes in attitudes of both learners and teachers
 - means acceptance of a different set of values and beliefs about teaching and learning
 - reflects the needs of the job

Box 4

present, as a valuable learning opportunity. By giving and accepting responsibility, trainees are moved closer towards a position of complete learning independence. This is particularly important in medicine as reflection on clinical experience is the bedrock of learning.²⁷ Learning contracts can help to make the most of this experience in a planned, structured and personalised way. Teaching in this way offers more variety than the traditional standard tutorial approach ("if it's Tuesday it must be diabetes"). Although it is initially time-consuming, especially with dependent learners, the one-to-one relationship that is established by the process of contracting can also lead to a greater personal investment by the trainer in teaching activities.

It is also the role of trainers to ensure trainees are aware of the standards and values expected by the institution or their profession. These standards and values must be taken into account when defining learning goals, which must also be congruent with the needs of the service.

Finally, the trainer must help trainees to evaluate their progress against the agreed objectives, by helping them to refine existing objectives or to set objectives to continue learning. Assessment of achievement can, and should, recognise creativity and initiative as well as increases in knowledge and skills.

To fulfil their part of the 'contract', trainees must learn to take the initiative when opportunities and resources for learning are made available, and make every effort to carry out their part of the learning contract. They too, need to be prepared for their new role. Success depends on each participant being fully committed to the process.

Barriers to contract-learning

There are many barriers to implementing contract-learning in an institutional context (box 3). At a practical level, it is time-consuming. One-to-one meetings with learners to develop individual contracts, the need for a wide variety of resources, and time needed to train both trainer and junior doctor make difficult and constant demands.

The relationship between trainer and trainee may be anxious at first and should be reassessed in the light of their new roles, which also requires time. Learning contracts do not work well in strongly hierarchical or patronising environments and require, as a basic principle, both supervisor and trainee to begin with flexible and open minds. The process of adapting to new and unfamiliar learning conditions can be very difficult and has been equated with the stages of adjustment to loss.²⁸

Organisational and management changes, the provision of extra resources and time set aside for training teachers and learners in self-directed learning methods, will mean that the active support of the institution is crucial. Paying lip-service to such learning methods without the development of supporting systems and structures will mean inevitable failure.

Examples of learning contracts and guidance on their design, development and use can be found in several of the literature references.^{8,12,13,20,25,29}

Conclusion

Contract learning has been introduced into medical education in a number of areas with success. It has much to offer medical teachers as well as trainees. Recent changes to the structure and process of postgraduate training for junior hospital doctors in the UK have emphasised contract learning as a major learning strategy. This paper has introduced some of the educational issues associated with this way of teaching and learning. Successful involvement in contracting requires both teachers and learners to readjust their roles and to acquire new skills so that the process becomes one of mutual participation based on respect for individual goals. When these become established, effective contracting is a stimulating, imaginative and enjoyable way to learn.

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Medical Anniversary

EDWARD JENNER, 14 MAY 1796

On this date Edward Jenner (1749–1823) became famous, for it was on this day he extracted the contents of a pustule from the hand of a milkmaid Sarah Nemes, affected with cowpox, and injected it into the arm of an eight-year-old boy, John James Phipps. Then on July 1, he injected the same child with smallpox, for the incubation period of smallpox is 14 days. The experiment was a success and he was able to write his treatise “An inquiry into the causes and effects of the Variolae Vaccinae. . . Known by the name of cowpox”. His old teacher John Hunter had always advised him with the words “Why speculate . . . try the experiment”.

Edward Jenner was born on 17 May 1749 at Berkeley, Gloucestershire, son of a clergyman. He gained worldwide recognition and honours when vaccination was accepted as being safe and effective.

— DG James

Photo courtesy of Gloucester Cathedral