An introduction to the medical education domain

Tim Dornan   Karen Mann   Albert Scherpbier   John Spencer

Outline

This chapter starts by explaining why it is helpful to think of medical education as a 'domain'. Then, it describes the domain in enough detail to provide a meeting point between readers who have only recently arrived in it and others who are already familiar with it. The first section represents medical education as a lifelong learning continuum, explaining how learners enter the continuum and what they experience thereafter. It highlights nodal points along the way that can give learners a sense of discontinuity; in particular, the summative assessments that allow them to progress, and their experiences of transition when they do so. The next section explains a number of themes that are common to all stages of the continuum and therefore characterise the domain. The last section identifies some contemporary tensions in the scholarship of medical education, which is relatively young, restless, and forward-looking, seeking to define how medical practice can be made most useful to society. The aim of the chapter is to 'problematise' medical education – readers who are unfamiliar or uncomfortable with the term will find a very good illustration of it in the way Coles teases out 'the curriculum problem' in Chapter 6. Essentially, we set out to define the problems to which this book provides solutions. There are some matters on which most people agree. There are others on which people disagree. Indeed, one person's orthodoxy can be another's heresy. Even in those parts of the domain that are commonly regarded as orthodoxy, why are they orthodox and what are the dangers of leaving their orthodoxy unchallenged? And why are there tensions in the domain? The word tension must not be regarded as a pejorative because it is along fault lines that progress is made. Perhaps we should even be more afraid of peace than struggle! This chapter draws its material almost exclusively from the other 19 chapters of the book. It leaves the fault lines gaping wide to motivate you to find resolution in the later chapters.

Introduction

The 'domain' metaphor is a fit one because medical education, like geographical domains, has boundaries, a landscape, a colourful mix of inhabitants, social systems that energise it and manage power within it, and a role in the wider world. Unlike geographical domains, however, this is a global one with more similarities than differences in its delivery around the world. There is a good chance its uniformity will change because, historically, North American and Western European thinking has had a hegemonic grasp over traditionally less powerful parts of the world, which it may have to relinquish. But that is over the horizon so, for now, there is more uniformity than variation.

Section 1: The medical lifelong learning continuum

Although it is truly a continuum, the domain divides easily along a timeline into undergraduate medical education, postgraduate medical education, and continuing medical education (CME). The latter is

increasingly called continuing professional development (CPD) to emphasise that it concerns personal development but we term it CME throughout this chapter in line with the book's focus on medical education.

Undergraduate medical education

Admission

Entrants to medical education have typically been grounded in physical and perhaps biological science in high school, in an access course, or in a prior degree programme. They may arrive fresh from secondary school, from another degree course, or from another career. A prior degree is an entrance requirement in the United States and Canada. Programmes in other parts of the world are more typically non-graduate entry, although calls for widened participation have led to the development of graduate entry tracks, which make medical education attractive to older entrants. The age of medical school entrants ranges from 18 – completion of secondary school – to the early forties, after which age the number of years serving society is insufficient to offset the cost of educating a doctor. Everywhere in the world, undergraduate medical education (confusingly, the same term is used to include the education of both undergraduate and graduate entrants) is higher education (i.e. delivered by a university). The attributes of practising doctors are determined to an important degree by the attributes of the people who enter medical school, so the selection of learners for medicine is a very important feature of the domain. Becoming a doctor is a popular career choice and a demanding course of study, so academic thresholds for entry are very high. In addition to measures of academic performance, some programmes use aptitude and personality tests and/or admission interviews to select their entrants. In Chapter 17, Reiter and Eva chart how admissions procedures have come to be 'reliable' insofar as they select entrants with a particular set of measurable attributes with any precision. Reliability, however, comes at a cost because the humane qualities of a good doctor are so personal that they are hard to measure in a replicable way. For that reason, replicable testing can distract from the elusive goal of identifying the best future professionals. Reiter and Eva explain how the process of selection for medicine is further complicated by today's social trends such as equity in access to medical school.

Length of the programme

Graduate entry programmes typically last 4 years while undergraduate entry programmes last longer. The length of the programmes is determined, in part, by whether they include a period of internship at the end (performing as part of a clinical care team in the capacity of a junior apprentice). Medical schools on the European mainland and some parts of Australasia do so, while internship in the United Kingdom begins after qualification perhaps because UK society is very intolerant of people who have not yet passed an exit test of competence delivering health care. The global picture is very confused. Programmes in the United States and Canada are all graduate entry and last 4 years, the final two being delivered along apprenticeship lines (a pre-internship if not an internship). At the other extreme, some 7-year programmes in southern mainland Europe withhold any authentic clinical experience until very late, at which time students start a type of internship. UK programmes provide clinical experience early and throughout the programme but often not integrated into real-time patient care. To make matters more complicated, the UK General Medical Council (accrediting body) is, at the time of writing, reversing trends by reinstating a type of pre-internship in the final year. The length of time before students get authentic experience in some programmes and the unofficial involvement of unqualified learners in authentic patient care in others will surely not be tolerated indefinitely in the European Union, which is seeking to standardise educational processes. For now, it is only possible to say that undergraduate medicine around the world lasts 3–7 years with widely varying clinical exposure (both quantity and timing) and engagement in authentic practice.

Curriculum

The early years

The rather specific description that follows is intended to complement what Coles has written in Chapter 6 about 'curriculum' as a construct, and how that construct applies in the medical domain. Undergraduate medical curricula have a fairly standard structure, although more integrative approaches described later are beginning to change the mould. The first 2–3 years are spent more in classroom than clinical settings and devoted primarily to learning the underpinning sciences of medicine with some clinical and communication skills. Biomedical

sciences include anatomy, physiology, biochemistry, and pharmacology. Behavioural sciences include psychology and sociology. Medical schools tend to have a much stronger leaning towards biomedical than behavioural sciences, reflected in the large number of biomedical scientists among their faculty and the lesser emphasis given to behavioural sciences. Humanities – including literature, graphic arts, and music – tend to have an even smaller but increasing place in medical programmes. Disciplines like medical ethics and law, pathology, radiology, and population health/epidemiology, which bridge 'pure science' and practice, have a variable presence in medical curricula. University-employed scientists predominate over practitioners in the early medical curriculum years. The amount of exposure to authentic workplace or community settings in the early years varies from none at all to extensive.

Transition to clinical learning

There is, typically, a point of transition when the focus switches markedly from theory to practice, the settings switch from classrooms to clinical workplaces, and faculty change from university scientists to practitioners. The timing of that transition ranges from 2 to 6 years after entry, typically 2–3 years. Undergraduate entry programmes may give students the opportunity to insert an extra year of study at that point to obtain a Bachelor's degree, typically in one of the foundation disciplines of medicine. One way or another, the experience of transition is a powerful one. Learners undergo an identity change from being a university student to being a student doctor. Norms of dress and behaviour change from student to professional ones. The subject matter switches from theory to practice. There are clinical skills to learn. Working days are long and tiring. The whole purpose of studying medicine – to be able to promote health and relieve suffering – comes into focus, which can be very motivating. But the possibility of doing harm and the distance between where students are now and the point they have to reach become uncomfortably obvious. Some practitioners provide inspiring role models in their humanistic behaviour towards patients and students, while others are arrogant and unfeeling. There are incidents of student belittlement and abuse. Emotional peaks are high, troughs are deep, and learners may move erratically from one to the other. Most settle into the new way of learning very quickly. Some accelerate their progress because there is a better outlet for their abilities and they feel more motivated. Others

spiral down into failure and even withdraw from their programmes. There is a general increase in anxiety and depression, which may reach clinical proportions. It is at this stage that one of its more worrying features of undergraduate medical education emerges – the growth of cynicism and consequent decline in empathy. Partly, cynicism is a protection against the emotional forces that are at play in clinical settings. Partly, it is a response to the gap between the altruistic ideals that brought students into medicine in the first place and what it is really possible for doctors to do on behalf of patients. Partly, it arises from negative role modelling, whereby practitioners' cynicism rubs off on learners.

Clerkships

Typically, the clerkship years start with an orientation to clinical settings coupled with intensive instruction in basic clinical skills when it has not been provided in earlier years. There follows a rotation through placements in the major specialities: internal medicine; surgery; obstetrics/gynaecology; paediatrics; psychiatry; and primary care. Whereas classroom instruction predominates in the early years, educational activities now centre on encounters with patients, observed, set up for instructional purposes, or arising out of students' participation in authentic patient care. There may also be formal 'off the job' education including, increasingly, learning in simulated settings. The faculty includes both trained and trainee practitioners, senior students, and peers. It also includes members of other health professions, notably nurses and midwives. It may include scientists as well as practitioners. The extent to which clinical staff are university-employed, affiliated, or even non-affiliated varies by programme and country.

A tension within undergraduate medical education arises from the already large and increasing number of specialities that can offer clerkships. A set of specialities that raises one particular tension includes dermatology, ophthalmology, and ear, nose and throat surgery. The diseases in question are very prevalent and cared for either by generalists or by a number of specialists that is too small to allow specialist instruction for every student. Clerkships in those specialities, therefore, are typically of short duration with the potential for various negative consequences. There is a lack of continuity, which prevents practitioners and students from developing the relationships on which clinical learning depends. Coverage of subject matter is limited. Practitioners are worn down by 'production line' educational

pressures, often superimposed on the clinical pressures of delivering a minority speciality. Another set of disciplines – exemplified by neurological medicine and surgery, and by musculoskeletal medicine and surgery – exemplifies a rather different problem. There is not so much a shortage of experts as a question about how truly relevant their increasingly specialised practice is to generalist education. The question manifests itself in struggles for curriculum time and protagonists' perception that their disciplines are not being given the prominence they deserve, often coupled with a perception that poor performance by qualified generalists could have been prevented by a more favourable apportionment of curriculum time. A third type of speciality, whose inclusion in undergraduate medical curricula is problematic, is what might be called 'service specialities'. They are generously staffed and play important roles in clinical care but have not traditionally been accorded the same importance as other clinical disciplines. Practitioners in those specialities include the pathologists who process morbid specimens (from biopsy material to recently deceased bodies), blood, and other bodily fluids; radiologists, who image (and, increasingly, treat) the body's disordered workings; and anaesthetists who render sick people operable by the surgeons who are in the curriculum mainstream. Those large specialities are important career pathways, so is it right that they should not be regarded as foundational disciplines and, if they are, how can they best be represented in a curriculum?

A final problematic aspect of clerkship education concerns primary care. To start with, huge semantic difficulties are posed by different usages of the term in US and UK medical English. Primary care includes internal medicine, paediatrics, and obstetrics/gynaecology in US terminology, but not in UK terminology. Britain, which has a strong tradition of GP, or 'family practice' in US medical English, uses the terms GP and primary care to mean much the same thing. Canada, Australia, and New Zealand are more aligned with UK English usage. Much of a GP's practice involves paediatrics and women's health, but paediatricians, obstetricians/gynaecologists, and general internists in UK practice are in secondary care, not primary care. The problem goes deeper than semantics and highlights how differences in health care systems affect medical curricula. No matter how primary care is defined, however, the undue dominance of tertiary (super-specialist) and secondary care specialities is a global issue, given the generalist goals of undergraduate medical education. Primary care, it can be argued,

is too important a facet of medical practice to be just one of many specialities in a clerkship rotation. A good case can be made that a generalist basic education is needed more than ever, supported by convincing evidence that primary care education can support a wide range of outcomes, including ones that were traditionally attained in hospital settings. To put the case for primary care education in a broader context, countries with better established primary care systems tend to have better health outcomes. Finally, many countries have difficulty recruiting generalists, so one important role of undergraduate medical education is to make careers in primary care attractive to students.

Choice and integration

Resolving the tension between specialities competing for space in medical curricula must be a local or national matter, and the decisions that are made must reflect the needs of the health care system and availability of disciplines to resource medical education. There are, however, two generic solutions that are becoming increasingly common. One is to differentiate between core learning, which must be common to all students, and optional placements, which students (usually) choose for themselves, such that there are differences in different students' experiences within one programme. Those optional placements may support a single, shared set of intended learning outcomes (ILOs) or they may each have different ILOs. Even then, the motivation to provide placements may be common to the different specialities involved – to provide 'tasters' which give learners an appetite to choose the speciality of the placement for their subsequent careers. A prime example is offering experience of remote or aboriginal care in countries with large land masses to foster recruitment to remote health care – particularly among students who themselves came from remote regions and might otherwise be drawn into urban practice.

The second generic solution to competition between disciplines for curriculum space is a more radical one, with a strong educational rationale. That is not to base the curriculum on disciplines at all, but to integrate them. Two terms are used to describe integration. Horizontal integration is to merge the subject matter of different disciplines into curriculum blocks, which are themed according to the various structures or functions of the body. Vertical integration is to break down the pre-clinical–clinical divide and have continuous, parallel strands of theory

and practice running through the length of the under-graduate programme. Vertical integration breaks down disciplinary boundaries by encouraging scientists and practitioners to coordinate, or even pool, their educational efforts. Horizontal integration breaks down boundaries by putting the subject matter first and regarding faculty as exponents of subject matter rather than exponents of their disciplines. Vertical and horizontal integration are popular solutions to the theory–practice divide discussed later in this chapter and the proliferation of disciplines explained earlier. Vertical integration is mandated by the UK General Medical Council, has been strongly advocated in the United States and Canada, and is being adopted quite widely simply because it makes sense to expose medical students to practise early. Vertical integration of a scientific emphasis into the later curriculum years is progressing slowly, partly because practitioners assume that students will have achieved fluency in science disciplines by the time they enter clerkships and respond to finding that they have not by expressing frustration rather than sharing their practical understanding of them. Abandonment of that rather rigid assumption (which too easily results in belittlement of students) and greater enthusiasm on the part of practitioners to help students obtain fluency in science through the medium of practice is an important area for future curriculum development.

Horizontal integration deserves special mention because it lies behind one of the most important of higher education's instructional design developments in recent decades, which medicine was very quick to adopt; problem-based learning (PBL). Dennick and Spencer discuss PBL in the context of small group learning in Chapter 9. Not only does it embody horizontal integration, it embodies a student-centred, active learning educational design. Students are given a narrative, video, or other instructional material, which represents a problem of some sort and acts as a trigger for inquiry. Their task is to define the problem, articulate what they already know that could explain the problem, identify what they do not know, articulate a set of learning goals, meet those goals, explain the problem to one another in the presence of a tutor, and identify what they have learnt. Over the past three decades, PBL has become a new educational orthodoxy of the early curriculum years, reframing scientific disciplines and faculty within them as resources of knowledge rather than the organisational structure of the curriculum. When, as is often the case, the problem is a clinical scenario,

sciences integrate to provide not just explanations but solutions to problems. Adventurous curriculum designers have extended PBL into the clinical years with at least moderate success. There are, however, two problems in adopting PBL in the later years. One is that the understandable desire to 'heal' turns PBL into problem-solving, which changes what is intended to be an integrative exploration of underpinning theory into a discipline-based heuristic exercise. The second problem is that medical practice is not integrated, so the integration of declarative knowledge in a seminar room is perpetually contradicted by the disciplinary nature of practical bedside knowledge. A more general problem, which bedevils research into its outcomes, is that different people interpret the term PBL differently. New medical schools, in particular, have tended to adopt a hybrid approach, so PBL is not one single, clearly defined entity.

Assessment

The unfitness for practice of medical graduates a century ago sparked off a determination to implement rigorous assessment processes, which dominate undergraduate medical education to this day. The tension between reliable selection of competent people and valid selection of humane ones is as apparent in the judgement about which students are fit to qualify as in their selection for medical school entry. What losses are there of humane people, we might ask, if nobody who falls below a reliably measurable threshold of competence is allowed to graduate from a medical school? The problem is accentuated by modern society's intolerance of unprofessional behaviour on the part of doctors. It is, of course, a shocking fact that the worst serial killer in modern history was not just a UK doctor, but one who was very popular with many of his patients. It is understandable that steps should be taken to qualify only truly humane people. But what is society losing when it reduces humanity to the reliably measurable attributes captured by the word 'professionalism' and assessing it? And how sure can we be that inhumane, devious individuals will lack the cunning to work such an assessment system to their advantage? Wass and Archer pick their way through those complex issues in Chapter 14, explaining the trade-off between reliability and validity. Acknowledging that assessment drives learning, they propose that competency assessment should move away from examinations alone to a more developmental, formative approach in which decisions about learners' progression are guided by information from multiple and diverse sources.

Postgraduate medical education

Postgraduate education differs fundamentally from undergraduate education because learners are not spectators or even *peripheral* participants in the clinical workforce. They are salaried, productive members of it, who contribute an important part of the skill mix, albeit the most junior one. Put simply, clinical services could not be provided without the contribution of postgraduate learners. As a result, most postgraduate learning is 'on the job' and informal, although formal events are making an increasingly important educational contribution. Teunissen and Wilkinson explain workplace learning in Chapter 12, reminding us from the outset that the main purpose of a workplace is to get a job done. Learning is, for much of the time, subordinate to provision of patient care, though Teunissen and Wilkinson highlight ways in which the routine activities of workplaces can be designed to optimise learning.

Transition

While the first part of this chapter has highlighted international variability in the responsibility taken by learners before qualification and variability in the degree of specialisation in their posts after qualification, there is general agreement that entering the workforce represents a second point of transition. Again, there is an important shift in a learner's sense of identity, now from student to practitioner. The task of writing prescriptions exemplifies that transition very clearly. Up to the moment a person's medical qualification legally comes into force, they may not write prescriptions, a complex and socially embedded task which it is difficult to learn without actually performing it. From the moment of qualification, learners are not just able to write prescriptions but are the members of the workforce to whom this potentially harmful task most often devolves and who must accept responsibility for its outcomes. Not surprisingly, the 'shock of practice' created by such an abrupt transition brings about much the same emotional reactions as medical students' entry to clinical environments.

Curriculum

It is harder to generalise about postgraduate than undergraduate curricula because there is considerable variation by speciality and country. Residency typically lasts 5 years. Entry to it may follow directly after qualification or may follow an internship of up to 2 years. Competition to be accepted may impose a time gap between qualification and entry to residency, typically filled by taking on a junior non-training position. Until recently, residency curricula were described in terms of the experiences that should be provided, typically a rotation between learning contexts and subspecialities. While the rotational design of residencies has not changed, programmes tend now to be specified more in terms of competencies that must be acquired and assessments that must be passed. As with undergraduate curricula, we urge you to note that what we are describing here is, according to Coles in Chapter 6, the 'curriculum on paper', which may be very different from the 'curriculum in action', and different again from the 'hidden curriculum'. Note also the contrast between the relative simplicity of this description and the complexity that, according to Coles, is characteristic of curricula. Finally, we draw your attention to Coles' warning that the contemporary move towards competency-based postgraduate curricula threatens to change medical education into a form of technical training.

Instructional methods

The instructional approach of residency can loosely be described as an apprenticeship. Learning results from participation in practice under expert supervision with formative feedback, reflection on experience, and appraisal. In Chapter 12, Teunissen and Wilkinson underscore the importance of feedback for effective apprenticeship learning while Driessen, Overeem, and van Tartwijk, in Chapter 13, explain how important it is that masters mentor the reflective learning of their apprentices. Increasingly, instructional activities during residency include skills instruction using one of the simulation techniques described by Nestel and Kneebone in Chapter 11. Progression depends on successful performance in summative assessments, overseen by a process of regular appraisal. Beyond that it is hard to generalise because educational methods are very speciality-specific.

Assessment

Concomitant with the shift to competency-based education, it has become usual to assess the competence of postgraduate learners using one or more of the workplace-based assessment techniques described

by Wass and Archer in Chapter 14. Typically, clinical performance and procedural skills are assessed by fully trained practitioners observing learners directly, making summative judgements, and providing formative feedback. The diet of assessments may also include a chart review. Professional attributes are assessed by a variety of co-workers, using a multi-source feedback instrument. In some countries – notably the United States and Canada – fitness for certification as a specialist is assessed by a summative test of knowledge and skills.

CME

CME is the least developed part of the medical education continuum although systems in Canada, Australia, and the United States have been developed considerably further than ones in many European countries. There have been two main drivers behind the introduction of CME. One is a pedagogic one, seeking to sustain and develop the expertise of fully trained practitioners throughout their careers. The other is a regulatory one, politically driven, and seeking to demonstrate to society that the medical profession is 'policing' the continuing education of its practitioners. They pull in different directions because the pedagogic approach is emancipatory, while the regulatory approach is more restrictive. The problem is that specialist expertise is so individual, contextually bound, and tacit that any system seeking to apply reproducible, standard criteria of competence is doomed either to failure or to undermining rather than reinforcing expertise. That, perhaps, is why research to date has shown little impact of formal CME on practice. The uneasy situation pertaining at the time of writing in the United Kingdom, whose system is more regulatory than emancipatory, is that enrolment in a CME scheme is a criterion for continued licensure. The system is designed for its regulatory purpose, with rather scant attention to the pedagogy of sustaining and developing expertise. Credits are awarded for participation in educational activities. The scheme is conceived of in terms of individual learning, sometimes without considering how individual and corporate development can subserve one another. Beyond accumulating credit hours, assessment is not yet a consistent feature of CME schemes although moves towards periodic relicensure will doubtless strengthen the case for summative assessment as a criterion for continued practice.

Conclusion to Section 1

Despite the discontinuities we have identified, a medical lifetime is more than a sequence of educational experiences arranged along a timeline. Medical students and doctors are bound together by professional activities and values. They co-participate in the educational events described in the next section. The responsibility of doctors to be teachers is a clearly defined part of the ethic of medicine and peer-assisted learning is an increasingly common feature of the undergraduate medical landscape. Learners in the later part of the continuum teach those in the early part of it – and are, in due course, replaced by them. In that sense, medical education takes place within a closed community. From an individual point of view, the continuum is a 'career', as described by Woolf and McManus, who start Chapter 18 by making the simple point that 'people differ'. So do their careers, supported by colleagues further along the continuum.

Section 2: Educational themes that run through the continuum

History

It is perhaps unsurprising that a pedagogic discipline whose history dates back two millennia sees today's educational practice in a historical context. Nestel and Kneebone (Chapter 11) explain how the need for simulation education has arisen from the passing of an era when the whole pace of medicine was slower, educational relationships were stable over long periods of time, and skills could be acquired through performing routine duties. The year of writing this chapter – 2010 – is the centenary of arguably the most influential event in the history of medical education, the publication of Abraham Flexner's recommendations for undergraduate medical education in the United States and Canada. Reiter and Eva (Chapter 17) explain how today's system of selecting for medicine was shaped by forces unleashed by the report, while Coles (Chapter 6) charts the 'explosion of curriculum development in medical education' that resulted from it. Kuper and Hodges (Chapter 3) characterise the Flexner report as so influential that medical educators still tend to regard its precepts as 'normal' without acknowledging that Flexner articulated them at a

moment in history far removed from the one in which they are now being applied. At the time of writing, the Carnegie Foundation (which employed Flexner) had just published recommendations for a second step change in US medical education. They were to: move from time served to competencies achieved as the focus for medical education; achieve greater horizontal integration between theory and practice across the lifelong learning continuum; foster interprofessional collaboration; supervise learners more effectively; orientate medical education more towards doctors' role in society; foster a spirit of inquiry and improvement; and select/develop faculty more intentionally for their educational roles.

The humanist orientation of medical education

A humanist orientation, which, in the words of Mann, Dornan, and Teunissen (Chapter 2), 'focuses on human potential for growth and the freedom of individuals to become what they are capable of becoming', is common to the practices of medicine and of medical education. Chapter 2 goes on to explain that adult learning principles, which have come to the fore in recent decades, are humanist insofar as they see adults as 'actively seeking out experiences that contribute to and reflect their ongoing development'. Dennick and Spencer (Chapter 9) argue that similar humanist principles underpin relationships between teachers and learners in small group activities. Carl Rogers, according to Chapter 9, conceived of education in terms of relationships of mutual trust between teachers and learners, which encourage students to be curious and motivate them to learn. Tan, Sutton, and Dornan (Chapter 1) note similarities between patient-centred practice and learner-centred education founded on 'kindness' – an 'ability to bear the vulnerability of others, and therefore of oneself'.

Medical education as 'a social good'

The value system that governs one-to-one relationships in medicine and medical education, coupled with medicine's ability to promote health and relieve suffering, makes medical education a potential 'social good', though Tan, Sutton, and Dornan's exploration of this issue (Chapter 1) warns of the ethical difficulties that arise when trying to decide exactly how education should realise its virtuous potential. Kuper and Hodges (Chapter 3) examine the issue of medical schools' social responsibility, pointing out how differently that responsibility can be defined depending on the theoretical perspective from which it is viewed. Towle and Godolphin (Chapter 5) explain the moral imperative to give people other than doctors a voice in medical education and describe ways in which education can be enriched by doing so. Certainly, there could be no medical education without the participation of people from the community, who are generally very ready to acknowledge its importance and participate in it.

Experience and context

What lies at the heart of medical education, more than any one pedagogic approach, is *experience* in *context*. A defining characteristic of clinical practice, according to Nestel and Kneebone (Chapter 11), is its complexity. Coles frames practice as a 'complex system' and warns against seeing it as 'a machine that simply needs oiling'. The fact that the experiential world of medicine is so complex creates opportunities and poses problems; opportunities because it has great power to stimulate learning; problems because its complexity can be bewildering, particularly to novices. Essential elements of experience can, however, be abstracted into the relative simplicity and safety of a small group discussion centred on a PBL scenario (Chapter 9) or instruction in a simulation laboratory (Chapter 11).

Mann, Dornan, and Teunissen (Chapter 2) argue that, however it is presented, experience is pivotal to learners' development at all points along the lifelong learning continuum because it lies at the heart of participation, which is central to social and collaborative perspectives on learning. Experience may arise 'simply as a result of living' or be provided in a way that gives teachers more control over it (Chapter 11). Experience is, however, only one of the variables that influences learning. Chapter 2 conceptualises learning as a cyclical process, which creates knowledge through the transformation of experience; learning, from that perspective, begins and ends in the experiential world. It follows logically that the more experience a person has, the more they stand to learn (Chapter 2). Teunissen and Wilkinson (Chapter 12) distinguish physical and social aspects of learning contexts, both of which must be attended to when constructing or choosing learning

environments (see the next paragraph) or quality assuring them (end of Section 2, this chapter). While acknowledging that the complexity of clinical contexts may force at least some learning activities to be conducted in non-clinical ones, we must remember that 'all competencies are context bound' (Chapter 14); learners are better able to recall and apply competencies in places that are similar to those where they learnt them (Chapter 12). The workplace is, therefore, a centrally important context for learning because it is the context in which learning must later be applied. In that sense, workplaces present learners with both their learning opportunities and their ILOs (Chapter 12).

Learning environments and social interaction

The concept of a learning environment is an important one in contemporary medical education. Of course, learning environments provide the context for learning discussed in the previous section but they do more than that; they serve as catalysts (or inhibitors) of learning and, from a social perspective, even represent the subject matter of learning. Boor and Isba (Chapter 7) distinguish material elements of learning environments – facilities, resources, and organisational aspects – from social elements – people and the way they interact. 'Perhaps the most valuable element of any learning environment', they suggest, 'remains the people within it – learners, teachers and patients. People can have profound impacts – either positive or negative – upon learners and play a large part in the process of learning'. Boor and Isba also distinguish between 'formal' (lecture theatre or skills laboratory) and 'informal' (clinical workplace) environments. Finally, they point out that learning environments exist at many different organisational levels. Boor and Isba argue that teaching is not the central activity of medical education it was once considered to be but a feature of learning environments that influences the quality of learning.

Material aspects of learning environments

The technologies that support skills education described by Nestel and Kneebone (Chapter 11) and the learning resources described by Ellaway (Chapter 16) are very important material features of contemporary learning environments. While emphasising their importance, Ellaway places learning resources in a contextual, rather than central, relationship with learners and their learning – in her words, 'simply making learning resources available to learners will not guarantee any kind of result'. Some types of learning resources have more agency and are, themselves, able to generate other learning resources. Still other types can simulate activities that take place within learning environments or contribute to those activities by scaffolding or supporting social interactions (see also Chapter 8) but material aspects tend to subserve social ones.

Social aspects of learning environments

One-to-one or several-to-one relationships

One of the strongest themes that runs through this book is that social relationships between individual teachers and learners underpin medical education (Chapters 1,2,5–9,12,13,18). Tan, Sutton, and Dornan (Chapter 1) write of teachers and learners committing themselves jointly to the service of learning. Mann, Dornan, and Teunissen (Chapter 2) consider how relationships support participation in practice. Dennick and Spencer (Chapter 9) frame the dialogue between teacher and learner as a 'conversational apprenticeship'. The relationship cannot be a truly equal one because learners are less competent but teachers can limit learners' experiences of failure and build relationships by showing humility and being sure not to humiliate (Chapter 1). An effective educational relationship is one of mutual trust which, when teachers and learners provide clinical care together, is in patients' interests. Teunissen and Wilkinson (Chapter 12) take patients' involvement in medical education a step further by regarding the clinical teaching relationship as a triadic (rather than dyadic) one in which patients are participants rather than passive onlookers. Towle and Godolphin (Chapter 5) take the logic a stage further again when they describe how patients can take on the officially sanctioned role of mentors to learners. Sensitivity towards learners' emotional reactions is an important facet of an educational relationship, which (according to Driessen, Overeem, and van Tartwijk; Chapter 13) must provide honest feedback without being judgemental. The relationship between a small group facilitator and learners, according to Dennick and Spencer (Chapter 9), should be one that engenders a climate of trust, and helps learners build confidence and self-esteem. A final type of relationship between teachers and learners is a 'vicarious' one (Chapter 9) in which teachers may even be unaware they are serving as role models. Teachers can make role modelling explicit

by drawing attention to aspects of their practice, which might otherwise pass unnoticed, and thereby help learners acquire tacit knowledge (Chapter 12).

Relationships within communities of practice

Mann, Dornan, and Teunissen (Chapter 2) parse out perspectives on learning and development according to whether they focus on individuals or on practice in a society and culture. The latter, known as socio-cultural perspectives, locate teaching and learning between rather than within individuals and go beyond one-to-one relationships to locate learning within groups of people; so-called 'communities of practice'. A socio-cultural perspective is not at odds with the individual social perspective articulated in the previous paragraph, but considers teachers and learners in terms of the communities they belong to more than as individuals. It is a remarkable fact that ethnographic research conducted in West African tailors, Mexican midwives, quartermasters in the US Navy, and Alcoholics Anonymous reported by Jean Lave and Etienne Wenger in 1991 should resonate so strongly in the world of medical education that no fewer than nine chapters of this book refer to it directly (Chapters 1,2,6,7,9,11,12,14,19). Communities of practice theory is discussed at greatest length in Chapters 2 and 12. To avoid undue repetition, this chapter quotes or paraphrases how the theory is represented at various points in the book: learners gradually become part of a professional group and their learning takes place through gradual absorption into a shared activity with common goals (Chapter 11). Learning is an integral and inseparable aspect of social practice and participation is the key to understanding how learners develop within a community (Chapter 12). A community of practice is a set of relations among persons, activity, and world over time that is the result of collective learning in the pursuit of a shared enterprise (Chapter 12). Learning is located squarely in the processes of co-participation, not in the heads of individuals. It is distributed among co-participants not a one-person act (Chapter 2). The work of Lave and Wenger moved the notion of apprenticeship from a dyadic relationship between teacher and learner centred on the performance of tasks to a social relationship between learners and communities of practice, centred on the co-construction of meaning and identity (Chapter 2). There is a reciprocal dynamic between learners' individual development and the development of their communities such that, at the end of the lifelong learning continuum,

'old-timers' may be transformed by more junior participants or come into conflict with them (Chapter 2). Medical learners are in a constant process of defining and redefining their identities throughout the lifelong learning continuum (Chapter 2). Avidly though communities of practice theory has been taken up by the medical education community, it sets up tensions that have yet to be fully explored. If learning resides so squarely within communities, how is it possible for learners to transfer their learning to other communities? One must assume the 'inter-subjectivity' (Chapter 12) that exists within communities rubs off on individuals in ways that extend beyond the confines of any one community in both space and time.

The subject matter of medical education

Section 1 described the specialities that contribute to medical education at different points along its continuum. Apart from the early undergraduate years and, in some specialities, when postgraduate learners prepare for summative knowledge tests, the subject matter of medical education is dominated by practice, either as a perspective that gives theory relevance and meaning, or as a perspective that is sufficient unto itself and far removed from theory. If that is true of Coles' 'curriculum on paper' (Chapter 6), it is even truer of his 'curriculum in action' and 'hidden curriculum'. Trained practitioners who espouse the importance of understanding theory usually do so only insofar as it is relevant to their practice. One can only imagine what would happen if a medical student, chastised by a surgeon for his lack of 'pure science' knowledge of skeletal anatomy, were to ask his (tor)mentor detailed questions about the physiology of the kidney. And how much would a nephrologist, whose practice depends on good knowledge of renal physiology, know about the surgical anatomy of the patella (kneecap)? That is not to belittle the knowledge that is required to be an effective doctor, but it is of a more tacit, contextualised nature than official curricula and clinical teachers tend to acknowledge. Possessing practical skills (Chapter 11) is more characteristic of doctors than members of some other professions, as is the possession of a highly developed system of values that is applied through the medium of practice (Chapter 1). It is conventional to categorise competence into knowledge, skills, and attitudes, a categorisation that

is too crude and dichotomous to capture the hidden curricula and curricula in action of medicine; the tensions created by framing curricula on paper in such terms are considered in Section 3 of this chapter. Suffice it to say that the skills of fully trained practitioners are imbued with a highly encapsulated and applied form of knowledge and, as our surgeon and nephrologist illustrated earlier, knowledge is useful only insofar as it supports practice. Finally, 'attitudes' are useless if they are just warm feelings. They must be informed by good practical knowledge of medical ethics and law and applied with good interpersonal communication skills and moral purpose. The subject matter of medical education is a nexus, teased out in curricula so that learners can enter into conversations with the practitioners they must, eventually, emulate.

The pedagogy of medical education

The large group tradition (Chapter 10) is very strong in medicine, particularly at the two ends of the continuum: the undergraduate years and CME. Small group learning (Chapter 9) is increasingly strong in the undergraduate years but only variably strong in the later years, given how much cheaper it is to educate one large group than multiple small ones, and how superficially attractive it is to stay within one's comfort zone in a lecture theatre when one is senior enough to choose. The development of clinical skills (simulation) centres, as described in Chapter 11 by Nestel and Kneebone, has been one of the most conspicuous changes in the medical education landscape over the last two decades and is set to continue given the practical nature of the domain and the increasingly technical nature of practice. Methods of assessment have, likewise, changed rapidly, partly because of the affordances of simulation technology. Objective structured clinical examinations (OSCEs; see Chapter 14) have become a standard way of testing practical competence in simulated settings during the undergraduate years and are becoming more apparent in early postgraduate education as well. Knowledge tests have changed from oral examinations to more reliable, standardised, impersonal formats over the same period of three decades. More recently, workplace-based assessments of knowledge, behaviour, and clinical performance have been very rapidly adopted across the postgraduate education domain and are beginning to penetrate CME as well. The sheer scale and relative affluence of medical education has positioned the domain well to adopt the education technologies described in Chapters 11 and 16, fuelled by society's understandable wish for doctors to demonstrate their competence in 'safe' ways before patients are exposed to them. A notable import, originally from the world of graphic arts, has been the learning portfolio (Chapter 13). There has been persuasive scholarly writing about reflective learning, so it is now an unusual undergraduate, residency, or CME/CPD programme (in more developed countries, at least) that does not have reflective learning, supported by a portfolio, as part of its pedagogy.

The pedagogies described in the previous paragraph support 'formal' medical education, but a characteristic of the domain, which has changed only superficially in recent years, is that most practical learning takes place informally in workplaces. So, the individual and social relationship described in the preceding paragraphs and workplace activities described in Chapter 12 are, above all others, defining and abiding characteristics of the domain. One of the most important tasks of medical educators is to keep the centrality of experiential learning within supportive relationships at the forefront of their minds whenever whim or fashion temporarily conceals its importance.

Developing the human capital

A main theme of this book, previewed in preceding paragraphs and further developed in the chapters that follow, is that the vitality of medical education resides in its teachers and learners. Wilkerson and Doyle consider how to develop the human capital of an educational institution in Chapter 19. They recount how there was a move in the second half of the twentieth century away from the belief that content expertise in the subject matter of medicine was all that was needed to prepare a doctor to be a teacher and that, beyond that, teachers were born not made. They explain that good education calls for 'an organisational structure to support the work of teaching and teachers, a variety of faculty development activities and resources targeted at the differing educational roles and individual needs of teachers, and a reward system that values excellence in the various educational roles needed in the institution'. So, it is now an expectation that medical education institutions will have mechanisms in place to develop doctors and other faculty members as teachers. A more recent change has been to recognise and address the development needs of learners as well as teachers,

moving away from a 'survival of the fittest' culture. Alongside faculty development, learner development is thus an emerging feature of the medical education domain.

Quality assurance

Having now described all the component parts of a medical curriculum, this final paragraph of Section 2 previews the content of Chapter 15, in which Dolmans, Stalmeijer, van Berkel, and Wolfhagen describe the steps that have to be taken to enhance the quality culture of an educational institution. The incentive to introduce quality assurance systems to medical education has come from a new climate of accountability and a need to be efficient in order to educate increasing numbers of medical learners without parallel increases in funding. The prerequisites for quality assurance are remarkably consistent with the prerequisites for good education: a coherent community working to agreed goals, with a sense of mutual engagement and accountability. Dolmans and colleagues describe the scrutiny of inputs, processes, and outputs, and evaluative processes that go into a cyclical process of continuous improvement, which, they argue, should be at the heart of a medical education institution.

Conclusion to Section 2

Medical education is closely in touch with its history, which has seen an explosion of curriculum development over the last century. Despite that pace of change, medical education has maintained a humanistic orientation, which makes it a social good. At its core, the pedagogy of medical education is a simple one: learners gain experience in context within supportive relationships. The material aspects and social processes of the environments within which learning takes place, however, are anything but simple. While the centrality of the master–apprenticeship relationship has long been recognised, recent developments in educational theory have broadened out the concept of apprenticeship to one that is situated within the nexus of relationships that constitutes a community of practice. The subject matter of medical education is, ultimately, very practically oriented but richly imbued with knowledge and values. While relationships are prerequisite, the learning that takes place within them can be strengthened by large and small group events, supported by education technology. Despite technological advance, informal learning through practice remains the defining pedagogy of medical education. Medicine's power to do harm as well as good calls for a strong emphasis on summative assessment, though contemporary education theory and practice is placing greater emphasis on the formative role of assessment with feedback. Education has traditionally been so deeply embedded in practice that it was often invisible. Two important features of its increased visibility in recent years are faculty and student development, and quality assurance of its processes and outcomes.

Section 3: Tensions

Tensions in the domain of medical education are not so much between different people holding clearly opposed points of view as between what best scholarly opinion holds to be most appropriate and the forces of either conservatism or change, though contradictions inherent to education can set scholars against one another. The type of conservatism that sets up tensions is often apparent in what people tacitly hold to be 'normal' or worthy of defending. The type of change that sets up tensions is driven by fashion, politics, or some other social force. Sections 1 and 2 have identified some such tensions:

- Having abrupt points of transition in what is supposedly a continuum,
- Selecting learners on the basis of their academic ability for a practice that depends, at least partly, on their humanity,
- Learning a practice (as in the case of prescribing, discussed under 'transitions') that one can only participate in as an onlooker,
- Espousing biomedical science as the main foundation discipline of what is, in practice, a humane art,
- Exposing altruistically motivated novices of the humane art to a hidden curriculum that breeds cynicism,
- Exposing learners to an adequate range of clinical experiences while allowing sufficient time for immersion in each of them,
- Balancing an adequate primary care experience against the wealth of learning opportunities that reside in specialities,
- Obtaining a good balance between the summative and formative roles of assessment,

- Balancing work and learning in workplaces,
- Regulating learning for regulatory purposes while emancipating learners to 'be as good as they are'.

This section explores five other, important tensions.

What is truth and how do we learn it?

Mann, Dornan, and Teunissen (Chapter 2) contrast a positivist perspective, according to which knowledge is value and context-free and exists outside the learner, with a constructivist perspective, according to which learners actively construct their individual understandings of the world. They contrast acquisition and participation metaphors for learning, according to which truth either passes from teacher to pupil, or arises from teachers' and learners' mutual engagement in education activities. They contrast 'universalist' approaches, which are preoccupied with what is common to different individuals' learning processes, with socio-cultural approaches, which are preoccupied with the diversity of people's processes of learning and development. While medical education is avidly adopting constructivist pedagogies, what many teachers tacitly hold to be 'normal' or worthy of defending is firmly rooted in positivism, the acquisition metaphor, and universalism.

Competency (outcome)-based education

This chapter has highlighted the breadth, depth, and interconnectedness of medical education's subject matter, and the central place of relationships in developing expertise. In Chapter 11, however, Nestel and Kneebone note a move from an apprenticeship model of education (which is founded on relationships centred around complex problems) to a competency-based model. Nestel and Kneebone warn that the competency movement risks over-simplifying complexity, aspiring to adequacy rather than excellence, causing learners and teachers to lose sight of the bigger picture, and leaving learners to cope with the problem of transferring generic skills they have acquired to specific contexts. Wass and Archer (Chapter 14) note that 'some believe this approach' (competency-based education) 'undermines medical professionalism and fails to provide the appropriate learning platform for CPD. Instead, it fosters a "tick box," "can do" mentality'. 'Even more seriously, there is a risk of generating "incompetency" if learners

perceive prematurely that they have achieved "competency"'. Coles (Chapter 6) is forthright in warning that a competency-based approach 'may be changing contemporary medical education into a form of technical training'. Far beyond the 'competent' person, the 'man of practical wisdom sees the particularities of his practical situation in the light of their ethical significance and acts consistently on this basis'. Competency-based education, according to Coles, is based on a 'product' model of education, when a 'process model would be more appropriate if the curriculum intention is to help people understand what is being taught'. Without specifying that learning outcomes should be expressed as competencies, White and Gruppen (Chapter 8) raise the important counter-argument that learners need specified learning outcomes if they are to assess themselves and prepare for assessment by others.

Self-direction and self-assessment

The existence of a plethora of interrelated terms and concepts scattered throughout this book – self-direction, adult learning, self-regulation, self-actualisation, self-assessment, self-monitoring, self-guidance, student-centred learning – highlights a fact and number of tensions. The fact is that contemporary medical education puts the rights, responsibilities, tasks, and development trajectories of learners and their learning ahead of 'teaching'. The tensions arise from balancing that principle against the rights, responsibilities, tasks, and development trajectories of individual teachers and the communities of practice of which they and their learners are co-members. All those stakeholders are, of course, bound together by a shared commitment to the rights, responsibilities, tasks, and development trajectories of the people they care for, which can heighten the tension. The different perspectives of a number of chapters illuminate those issues in ways we now briefly overview.

Mann, Dornan, and Teunissen (Chapter 2) note that becoming a self-directed learner is widely regarded as the fundamental basis of self-regulation, in turn, a *sine qua non* of professional practice. They juxtapose their treatment of it with an explanation of adult learning principles, used also by White and Gruppen as a perspective to illuminate self-assessment in Chapter 8. Self-directed learning, according to Chapter 2, can be viewed in two different ways: as a personal attribute or a set of skills. It is perhaps best characterised as a humanist orientation,

which sees learning as progression towards a fully developed 'self-actualised self', though Mann, Dornan, and Teunissen note that self-directed learning 'has not had an easy path as a guiding principle for curriculum design and as a perspective in its own right'. One reason is that a person's self-directedness is as much a product of the environment in which people find themselves as an individual attribute. Yet, 'self-direction remains a deeply valued goal and tenet of the profession and a critically important attribute to identify educational needs and keep up to date over a lifetime of practice'.

A major criticism of self-directed learning is that it depends on self-assessment, which Wass and Archer (Chapter 14) urge us to 'view with caution as an assessment tool' because unconscious, self-serving processes make us unreliable at making judgements of our competence that accord with external judgements. Teunissen and Wilkinson (Chapter 12) describe how individuals learning in workplaces use self-monitoring and self-guidance, which together contribute to self-regulation, to react and respond to events. Self-regulation, they explain, is receiving increased attention within medical education as an alternative way of conceptualising self-assessment. Driessen, Overeem, and van Tartwijk (Chapter 13) take the concept a step further when they write of effective learners creating 'internal feedback and cognitive routines while they are engaged in academic tasks', as opposed to less effective learners, who 'have minimal self-regulation strategies and ... depend more on external factors (such as the teacher or the task) for feedback'. Driessen, Overeem, and van Tartwijk neatly reconcile self-reliance with external support in their concept of 'self-assessment seeking behaviour'. Within their model of reflective learning, 'self-directed assessment seeking and reflection are critical and a mentor is of great importance'. Chapter 8 is wholly devoted to the concept of self-assessment, the educational principles and methods of which it analyses in great detail and relates to the concept of self-regulated learning. White and Gruppen make a very useful practical contribution by describing a rich set of tools 'for self-identifying and addressing gaps in knowledge and skills'. They describe how faculty can assume roles as effective facilitators of self-regulated learning. Continuing on the theme of supporting learners' autonomy, Woolf and McManus (Chapter 18) state that 'autonomous motivation is not inborn or static, but can be nurtured ... by clinical teachers'. In the context of career counselling, that is achieved by 'listening to the needs of students and trainees, understanding their points of view, encouraging them to make their own choices and giving them sufficient information to make those choices'. Dennick and Spencer (Chapter 9) give a small group learning perspective on teachers' relationships with autonomous learners, drawing on Rogers' view of trust as the ingredient that changes teaching to the facilitation of learning. A facilitator helps learners 'become as much as (they) possibly can' – that is, to self-actualise.

While this chapter can give only limited insights into the self-directed learning debate, which is far from over, we conclude our overview by turning to a perspective from which other ones gain much of their legitimacy; a moral and philosophical one. Sutton, Tan, and Dornan (Chapter 1) ask whether 'selfness' means 'self to the exclusion of others or self in relation to others'. They discuss the strengths and weaknesses of 'self-direction' in terms of where it places the responsibility for learning and how it makes relationships between learners and teachers more or less legitimate. They question whether the high level of autonomy some people infer from the term is realistic or desirable. They find resolution by locating autonomy within the arena of 'individual development, interpersonal relationships, and organisational structures rather than individual "selfness," which the term is often taken to mean'. They reword the point at issue as 'the learning-directed self' to reduce the danger of learners being left unsupported. Through the inherently social process of participation, they propose, the formed practitioner emerges. A good learning environment, we may conclude from their analysis, models good medical practice within 'a culture which places a high regard on both trustworthiness and a "kindness" which protects the most vulnerable'.

Uniprofessionalism or interprofessionalism?

The way this book has a uniprofessional title but speaks of learning taking place within communities of practice, whose members are drawn from many professions, highlights a tension that characterises the domain. It is noteworthy, also, how the topic of interprofessionalism is largely confined to Reeves and Goldman's consideration of it in Chapter 4,

which was commissioned to be sure it was represented. A notable exception is Towle and Godolphin's description in Chapter 5 of how community educators, recruited from patient organisations and advertisements, lead interprofessional education workshops in which students of the various professions learn with, from, and about one another. A cynic might observe that this self-evidently valuable initiative is worthy of mention primarily because it is so much an exception to the uniprofessional rules of the domain, and might note the irony that specially recruited community leaders are needed to get health professionals working together. Against that is set Reeves and Goldman's treatment of the topic which, from beginning to end, makes interprofessionalism 'normal', or at least the way things could and should be. Reeves and Goldman, moreover, explain why it is in medicine's interests to be slow to adopt interprofessionalism; they explain how medicine ensured its dominant position over other health and social care professions by being the first to 'engage successfully in a professionalisation project', which secured for it 'the most highly prestigious areas of clinical work – the ability to diagnose and prescribe'.

Simulation or reality

The tradition, as was explained earlier in this chapter, was for most or all of a doctor's education to be gained through authentic experience of practice as a clinical apprentice. The last century saw an increased proportion of first undergraduate then postgraduate education shift to classrooms and laboratories. Over the last three decades, an explicit focus on clinical skills instruction led to the emergence of clinical skills laboratories, most of whose activities involve simulating reality. A typical PBL scenario, it should also be noted, simulates reality, albeit as a written narrative for discussion in a seminar room rather than a practical activity in a simulation laboratory. Replacement of reality and meaning with symbols and signs, such that 'experience' is of a simulation of reality rather than reality itself, was

named by Baudrillard a 'simulacrum'. Nestel and Kneebone, in Chapter 11, are very circumspect in their narrative of skills education and the use of simulation, seeking to 'bridge the gap between formulaic, impoverished model-based training and the richness and unpredictability of clinical practice'. They warn against a fragmentation of skills education 'into isolated components' which 'can lead to over-focusing on the technical elements of procedures'. Teachers do that because, amongst other reasons, they feel swamped with the large numbers of students they have to teach and because altered patterns of care and concerns about patient safety make reality hard to access. The preceding description of how context is a vital element of learning makes it clear that retreat into a simulacrum is, ultimately, counter-educational. Coupling best use of simulation with imaginative use of reality is a pressing challenge, to which Chapter 11 suggests innovative solutions.

Conclusion to Section 3, and of this chapter

To keep up momentum in the domain of medical education, we should be at least as interested in its unresolved problems as its successes. We have drawn on the rest of this book to highlight difficulties and contradictions in the selection of learners, in the philosophy, morality, and subject matter of medical education, in the instructional design of what is supposedly a lifelong continuum, in its pedagogic methods, in the balance between instruction and experiential learning and the balance between different experiential elements, and in the balance between developing individuals and the relationships between them while assuring their competence, and regulating the whole process. We promised to leave the 'fault lines' of the domain gaping wide, so this chapter, unlike the other nineteen, does not conclude with 'implications for practice'. We leave you to read on and find how the authors derive practical implications from their detailed consideration of principles overviewed earlier.

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