Work-based learning

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KEY MESSAGES

• The workplace is a fundamentally important site for learning in both undergraduate and postgraduate medical education.

• The erosion of time-served methods of apprenticeship creates challenges for those tasked with ensuring that healthcare professionals are appropriately trained to deliver safe, efficient and effective patient care.

• Insight into the theoretical concepts underpinning work-based learning reveals a range of tools and approaches that can be employed to ‘revive’ apprenticeship and support work-based learning.

• Faculty development for clinical teachers drawing on social theories of learning provides a way forward to enhance work-based learning in medical settings.

Introduction

Work is where we spend a considerable amount of our life and expend a great deal of physical and emotional energy. Work is essential to our well-being. Work is how many people define themselves, be it in relation to their role – ‘I am a doctor’ – or to their place of work – ‘I work for the University of…’. For doctors, work and the workplace is where their professional learning is made real, where knowledge and skills are acquired, crafted and developed.

We all have different experiences of work and workplaces. We influence our workplace and it influences and shapes us. The workplace can be a nurturing environment where knowledge and skills are fostered, extended and developed through work activity and our interactions with others. Equally, it can be a dysfunctional environment that stifles creativity, dampens professional motivation and leads to psychological and physical ill health.(1,2)

In this chapter we explore the changing landscape of medical education, describe current conceptions of work-based learning and underpinning theoretical perspectives, and propose strategies to enhance work-based learning for medical students and trainees. Throughout, we acknowledge that the challenges faced by those involved in supporting work-based learning are equally relevant to those who work in dentistry, veterinary medicine, and other health and social care professions.

The Changing Landscape of Medical Education and Training

Medical education is undergoing a period of unprecedented and rapid change. In the UK, the number of ‘stakeholders’ with interests in, and influences over, education and training is growing, creating tensions within and across undergraduate and postgraduate sectors. Tensions arise between universities, who see their role as to promote academic excellence and produce world-class graduates, and the National Health Service, which requires trained staff to meet the current and future health needs of the population.(3)

The UK is not unique in facing such challenges, with the reform of medical education in the US being described by Whitcomb(4) as ‘the most serious challenge facing academic medicine’s institutions’, and others arguing that teaching and patient care have become subordinate to research and that the increased demand for productivity is eroding teaching time.(5)

Changes in clinical service organisation and delivery have resulted in patients spending less time in hospitals, which traditionally have been the main provider of work-based experiences for students and trainees. Concerns have been raised that ‘healthcare as a business may threaten medicine as a calling’, with clinical teachers being challenged to provide opportunities for learning through experience and practice.(6)

In the UK, European working time regulations have contributed to the loss of ‘firms’, the traditional supervisory relationships that supported work-based learning. At the same time as increasing emphasis is being placed on the workplace as the site for education and training, concerns have been raised about graduate preparedness for practice. The outcomes of these changes mean that students and trainees compete for training time, patient contact and appropriate supervision.

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Finally, while work-based learning is seen as a fundamental aspect of education and training, its perceived status has been challenged by the privileges afforded to formal teaching. This is evidenced in protected teaching time, investment in formal teaching spaces and simulation resources within clinical environments, and investment in off-site development opportunities for trainees and their trainers. The danger of this is that work-based learning is marginalised and undervalued. Yet, as we argue in the next section, the curriculum of the workplace is fundamentally important to the development of future doctors.

The Current State of Work-based Learning in Medical Education

There is evidence to suggest that a significant proportion of medical graduates do not feel suitably prepared for clinical practice and have concerns about dealing with the day-to-day realities of working life, be it dealing with acutely ill patients, prescribing, managing their workload or being on call.(7–10) Significantly, additional challenges, such as understanding their role and boundaries, may only become evident in their first posts.(8) The reasons why some graduates feel unprepared are complex and span individual and organisational dimensions. However, the amount and nature of work-based experience undergraduates have and their opportunity to shadow first posts before commencing employment appears to increase their preparedness. Early experiences of the workplace were noted to have an impact on intended career pathways for half of those in the British Medical Association cohort study, with working conditions and work hours the main reasons cited for planned changes.(9) It is of concern that the number of graduates with a strong desire to practise medicine declines following these early work experiences.

The relevance and quality of work-based learning experiences have been called into question in a number of studies(11–17) and concerns are raised in the following areas:

- inadequate systems of structured educational appraisal(18)
- insufficient time available for teaching(19,20)
- insufficient outpatient experience(21–23)
- lack of involvement in clinical audit(23)
- too many educationally unproductive tasks(22)
- inadequate clinical supervision(16,24)
- poor induction(21)
- difficulty accessing study leave or library facilities(25,26)
- excessive and concentrated workload.(27)

There is little doubt that doctors in training value work-based learning experiences and seek opportunities to engage in work-based learning. They want a structured environment where work-based learning is valued, protected and appropriately supervised and supported. However, reform of healthcare, education and training, and threats to the time-served nature of training, is placing significant challenges on those in training and those who are charged with supporting and fostering their development in the workplace. A greater understanding of the nature of work-based learning and strategies is key to overcoming these challenges.

Learning and Work

In this section we review the dominant conceptions of work-based learning and the models commonly in use. This inevitably leads to a review of ideas of learning per se, which is important as these ideas shape the ways in which we engage with learners and the pedagogic practices we adopt. Scott(28) provides a thoughtful critique of curriculum theories, and drawing on Bernstein’s model of curriculum as performance,(29) he identifies the following predominant elements in mainstream education:

- the strong focus on traditional forms of knowledge (discipline-based)
- distinctions between lower and higher domains of knowledge
- differentiation of learners and the curriculum (selection, differentiation)
- the teacher’s role being to impart knowledge.(28)

While his critique focuses on schooling, there are parallels with professional education. In medicine, as with other health professions, the curriculum has been based on a model of technical rationality, where knowledge (in the mind of the learner) is ‘applied’ to the world of practice. Although this model has been challenged, it persists in the minds of many as the ‘best’ way to educate, leading to a continued focus on imitation and instruction as the primary tools of the teacher. However, Bilet(30) and others(31,32) have argued that the tendency to compare work-based learning with formal learning, or to draw on formal models of learning in the workplace, is unhelpful. Responding to this, we examine existing and emerging notions of work-based learning and the potential to develop new approaches to professional education and training.

Formal, informal and non-formal learning

Medical education has tended to draw a distinction between ‘formal’ learning (medical school) and ‘informal’ learning (in the clinical work environment). Formal learning is typically characterised by timetables, aims and objectives, a defined curriculum and often progressive linear teaching and examinations.
In contrast, informal learning, usually in the workplace, has traditionally been less valued by teachers and students, viewed as haphazard and lacking any formal educational rigour, process or structure. As noted previously, these criticisms arise in part because work-based learning is compared with the process and pedagogy of formal learning rather than being viewed as having a pedagogy and process of its own.

Eraut(33) proposes a move away from the use of the term ‘informal learning’ to that of ‘non-formal learning’. In so doing he proposes a typology of non-formal learning, focusing on the learner’s intention to learn. Implicit learning is characterised by learning that takes place without any prior intention to learn by the learner, with the learner being unaware of the learning at the time. He contrasts this with deliberative learning, where the learner sets time aside to learn and approaches learning in a planned and purposeful way. Between these two points, Eraut describes reactive learning, which happens almost spontaneously as a result of situation and circumstance. While the learning is not consciously planned, learners recognise learning opportunities, are prepared for emergent learning opportunities and are likely to engage in brief, almost spontaneous reflection on learning events or experiences. This distinction is helpful when we consider ways to promote work-based learning, suggesting the possibility of explicitly recognising, responding to and valuing the learning that arises during everyday practice, and encouraging students and trainees to do the same.

**Work-based learning**

Work-based learning spans all stages of medical education and training, from early undergraduate years, through specialist training and, increasingly, continuing medical education. Boud and Solomon(34) have explored the place of work-based learning in professional education, noting that undergraduate courses now:

- acknowledge the workplace as a site of learning and as a source for making the curriculum more relevant. As such they are a signal of the blurring distinctions between the university and the workplace. (p. 34)

They go on to note that this ‘blurring’ signals the increasing legitimisation of learning outside formal academic contexts and argue that this creates both opportunities and challenges for students and trainees:

- Learning tasks are influenced by the nature of work and, in turn, work is influenced by the nature of the learning that occurs. The two are complementary. Learners are workers; workers are learners. They need to be able to manage both their roles. (p. 34)

This dual role is particularly striking in postgraduate training, where trainees are also employees and therefore have service as well as learning commitments. Seagraves(35) distinguishes three ‘links’ between work and learning:

- learning for work
- learning at work
- learning from work.

These semantic distinctions are important, signalling, albeit implicitly, different relationships between working and learning, and the intended purposes of that learning. The question that arises is whether, for example, the medical curriculum is designed or intended to enhance working practice or professional practice. In other words, is the learning undertaken for the benefit of the employer or the individual? To some extent, this depends on the perspective from which work is viewed.

Evans provides three perspectives that are of value in viewing work-based learning:

- industrial relations
- sociological
- social learning theory.(36)

Viewed from the *industrial relations* perspective, work is a contested activity, with constant tension between employee and employer over rights, obligations and the prevention or misuse of employee skills and labour. Work-based learning is driven by the needs of the workplace, rather than those within it, with access to further training and development opportunities being driven by desires to promote innovation or efficiency. Work-based learning is something employers control (e.g. study leave). For medical students and trainees this is visible in issues such as access to study leave, hours of work and rotas, and the emphasis on statutory training.

Viewed from the *sociological* perspective, however, work is more of a place of and for social interaction, socialisation and identity formation. Clearly this is of influence in the development of professional roles and identities, where interpersonal relationships, power, authority and status are all part of the dynamic of the workplace. In this context, how an individual trainee or student relates to others and how they are perceived by others may have a bearing on the types of learning experiences they are offered and the training they receive.(37) How work is perceived will have an effect on how an individual views and approaches work-based learning. Work involves professional activity but also demands of doctors, trainees and students additional duties, roles and responsibilities. Understanding this is central to work-based learning and, as we will argue later, is important if students and trainees wish to maximise their learning at work. The difficulty is that the privileging of, and overemphasis on, formal learning in undergraduate years may influence student and trainee ability to recognise the learning that is embedded in working activity.
The perspective of social learning theory will be addressed in the sections below, but any discussion of work-based learning in medicine would be incomplete without first a consideration of the centuries-old practice of apprenticeship.

Apprenticeship
At its most prosaic, an apprentice is someone who is paid by their employer to learn. But the apprentice–employer relationship has added complexities, and historical forms of apprenticeship have embraced learning at, for and from work, and provided opportunities for the apprentice to learn their craft through supervised practice. (38) Scott describes apprenticeship as a pedagogic approach where ‘the learner is supported in their attempts to gain access to the culture of the society in which they are being educated’. (28) However, Dornan notes that traditional forms of apprenticeship are threatened by discontinuity of care (with decreased length of stay), over-specialisation of services, and staff and students living ‘off site’. (39) Ideas of apprenticeship have been expanded, with the cognitive apprenticeship model – ‘making thinking visible’ – being of particular relevance to clinical teachers (see Box 5.1).

In keeping with the dominant paradigm of learning described earlier, traditional forms of apprenticeship have been focused on the instruction and development of the apprentice in the workplace. The focus is very much on the development of the individual, through engagement with the supervising expert. It does not accommodate the idea that the expert may learn from the apprentice and that the apprentice may in fact shape the practice in which they both engage. Contemporary views of apprenticeship, building on socio-cultural theories of learning, accommodate not only the reciprocal nature of learning between ‘apprentice and master’, but also the contributions made by others in the professional community. New formulations of apprenticeship are emerging that enable us to look beyond the novice–expert dualism and consider a social apprenticeship that much more actively recognises the contributions made by the wider community of the workplace. (42)

Theories of Social Learning

Theories of learning can be seen to sit within different educational schools of thought, from the behaviourist (learning through reinforcing), to the cognitive (learning through knowing) and the social (learning through becoming).

While behaviourist principles can be identified in skills-based teaching, cognitive models have long dominated the literature of medical education and training. Cognitive models align with the emphasis on analytic reasoning that has dominated medical education in the years following the Flexner report. (5) However, cognitive models, with their emphasis on the individual, have limitations when considering the complex nature of work-based learning. Attention is turning to social models of learning, and in particular socio-cultural theories of learning, as a way of illuminating ways in which students and trainees develop professional knowledge, skills, values and identities in the workplace. (43) In the following section, these differing perspectives on learning will be explored and their relevance to work-based learning considered.

Broadly speaking, behaviourism contests that learning is manifested by changes in behaviour, these changes being the result of stimuli that are external to the individual, that is, environmental factors. Hartley argues that the learning principles arising from the behaviourist school are focused on the importance of:

- learning by doing
- frequent practice in varied contexts
- reinforcement as a prime motivator
- the need to have clearly defined behavioural objectives that are communicated to the learner. (44)

These learning principles are readily observed in popular models of skills-based teaching in medicine.
and the rise of outcomes-based education. But however desirable the models may seem, they belie the complexity of the work-based and professional learning. The cognitive orientation to learning can be seen as a shift from behaviourists’ focus on the external world to one that focuses on the internal world and changes in thinking.

Within the cognitive school, the focus shifts from the external to the internal world of learners. The focus is on the acquisition of knowledge and skills, be it as a result of input from a more able ‘other’ (through processes of transmission) or through engagement with one’s own experiences (constructivism). Hager(45) refers to this as the standard paradigm of learning, which sees the ‘best’ type of learning as being:

- in individual minds
- propositional in nature
- expressible verbally or in writing
- transparent to the mind.

Constructivism, closely linked to the work of Jean Piaget, posits that meaning (or learning) is generated through human engagement with experience. As Scott and Palinscar note:

Constructivists argue there is no such thing as ready-made knowledge; regardless of what a teacher does, learners construct their own knowledge. All learning (…) requires reinterpretting the information to be learnt or used in light of one’s existing understandings and abilities.(46, p. 31)

Cognitive views on learning dominate medical education literature and practice. As Swanwick notes, the contested concepts of andragogy,(47) experiential learning(48) and reflection(49,50) have led to the almost wholesale adoption of portfolios, appraisal and personal development planning in all walks of medical education and training. (32) What is important to note here, however, is that these models present learning as essentially unmediated activity, which happens as a result of learner engagement with their own experiences. For example, Kolb’s learning cycle of concrete experience, reflection, conceptualisation and experimentation(48) is abstracted from a social context and tells us little about the types of experience that may foster this cyclical process or the role of more expert practitioners in encouraging or supervising subsequent reflection, conceptualisation and experimentation. Lee et al.(51) note this emphasis on rational and cognitive aspects leads to work performance being ‘conceived as thinking or reflection followed by application of the thinking or reflection’. (51) Central to these models is the individual learner’s capacity to engage with an experience, reflect critically on it and deduce the lessons learnt that need to be applied to future activity. Cognitive perspectives of learning will tend to lead to an emphasis on instructional methods, with the importance of structure being stressed. The importance of building on prior knowledge is key, and so distinctions between individual learners are important when planning teaching or supervision. Cognitive feedback (successes and failures) is an important dimension, providing learners with new information to assimilate and accommodate. However, cognitive models of learning are increasingly being called into question as an appropriate model for work-based learning in medicine.(31,32,52) Theories of learning that recognise and explicitly emphasise the social, participatory and context specific nature of learning are argued to be of greater relevance to complex practice that happens in teams and communities of workers and learners. Three of these – social cognitive theory, social constructivism and socio-cultural theories – will be considered in the next section.

Social theories of learning pay attention to both the inner and external worlds of learners, and the interaction between individuals and those around them is central to the process of meaning making. Each of the theoretical perspectives explored in the following section places different levels of emphasis on this interaction and the impact of the social elements on learning and practice. All offer valuable insights into the potential nature of work-based learning in medicine and suggest ways of working with students and trainees to foster learning.

**Social cognitive theory**

Social cognitive theory can be seen as a coming together or a bridging of the behaviourists’ concern with external, environmental stimuli and the cognitive theorists’ concern with the internal mind. Bandura proposed a model of learning to capture what he saw as the dynamic interplay between the personal, the cognitive and the environmental, which, combined, determine an individual’s behaviour. He described this as reciprocal determinism(53; see Box 5.2).

Bandura also identified five fundamental human capabilities:
- symbolising (in order to give structure, meaning and continuity to their lives)

### BOX 5.2 Reciprocal determinism in social cognitive theory

[Diagram showing reciprocal determinism with arrows indicating personal factors, environment, and behaviour]
• forethought (planning for action, considering potential consequence of actions)
• self-regulation (through the positive and negative consequences that their behaviour produces)
• self-reflection (in relation to own functioning and self-efficacy)
• vicarious learning (through close observation of others).

It can be argued, therefore, that what people think, feel and believe will influence how they behave, with self-belief [also described as self-efficacy(54)] being an important determinant of motivation and achievement. The capability for vicarious learning has been argued to be an important element of role modelling in medicine and a powerful means of transmitting values, attitudes and patterns of behaviour, be it through imitation or identification.(55)

Role modelling is foregrounded in the medical education literature as a key process in professional development and enculturation, and Box 5.3 summarises some of the characteristics that ‘good’ role models are said to display. A recent review of the literature pertaining to ‘good clinical teaching’ notes the dominance of non-cognitive characteristics based on personal and relationship-based attributes.(56) It is unsurprising therefore that concerns have been raised about the erosion of role modelling through the demise of apprenticeship and the commercialisation of healthcare.(5,39) Despite the central importance ascribed to ‘good clinical teaching’ notes the dominance of non-cognitive characteristics based on personal and relationship-based attributes. It is unsurprising therefore that concerns have been raised about the erosion of role modelling through the demise of apprenticeship and the commercialisation of healthcare. (5,39)

Despite the central importance ascribed to role modelling, its basis remains largely unexamined and considerable assumptions are made of its effectiveness.(55)

Social constructivism

In constructivist models the emphasis is on how the individual learner ‘constructs’ knowledge; that is, how the learner makes sense of new information and experiences provided by the teacher, the environment and their wider experience. Social constructivism goes one step further, emphasising the importance of social engagement in the learning process. In other words, learners make sense of new ideas and information by engaging with others, be it their teachers, their fellow students or others around them. An example of social constructivism at work in medical education would be (in its purest form) problem-based learning.

Vygotsky, who developed his theories of learning from observational studies of children interacting with adults, was a key contributor to social constructivism. He noted that children were more successful in learning tasks when they engaged with adults (a more knowledgeable ‘other’) than when they worked independently, arguing that learning awaken developmental processes that are able to operate only when the child is interacting with their peers and others in their environment. (59) This is significantly different from models of experiential learning explored above, which suggest that the provision of a learning experience itself leads to learning. Vygotsky drew attention to the concepts and tools teachers use to mediate the learning of another, stressing the importance of language (or shared talk) in the developmental process. Importantly, he introduced what has been described as a fundamentally new approach to the need to match learning to the learner’s developmental stage, through the construct of the zone of proximal development. (46) This refers to what a learner can do with the support of a more knowledgeable other (be it their teacher or their peers) and is contrasted with their zone of actual development, or what they can do independently. Box 5.4 illustrates the ways in which Vygotsky’s work can shape approaches to clinical teaching.

Social cognitive theory and constructivist approaches help us understand ways in which we might support student or trainee learning. However, even these models are limited in helping us better understand the complexity of work-based learning. Recent years have seen the development of socio-cultural theories of learning and these are explored now.

Socio-cultural learning

It has recently been argued that junior doctors learn by ‘situated learning in communities of practice’, (43) explicitly referring to the work of socio-cultural theorists and, in particular, the work of Lave and Wenger. (60,61) The evidence base supporting this assertion is explored in Box 5.5. Socio-cultural theories of learning have broad disciplinary origins and embrace a wide range of theoretical perspectives. However, it has been argued that they share some core tenets, these being that learning is:

- situated (shaped by the context in which it occurs)
- mediated (by a range of symbolic and conceptual tools)
- historically and culturally influenced. (62)

Social cultural theories have undoubtedly been influenced by Vygotsky’s work (and others from the social-
aloud ‘  management options on the ward round, we patients we are having difficulty with, or we ‘ think So, for example, when we talk to our colleagues about and parcel of our everyday experience and practice. They start from the assumption that learning is part learning and working (or practice) as being artificial. new times and contexts. successful strategies can evolve to be equally successful in been successful in work-based learning in medicine (31,32,52,62–64) however, few studies have been undertaken to explicitly explore the extent to which their claims are true of medical education. A qualitative study of medical student learning on clinical attachments supported the idea that attachments could be seen as times spent in communities of practice, albeit in a descriptive sense. The limits placed on student engagement in authentic work-based activity, the extent to which students and their teachers identify the learning resources embedded in this day-to-day activity and the hierarchical (and sometimes authoritarian) stance towards teaching and learning limited the extent to which this claim could be supported. (65) Likewise, a qualitative study of general practice training revealed that registrars may not be able to become full participants in the practices of a community, nor may they be able to access and engage with all of the community members to develop shared understandings of practice. (63) The work around preparedness of graduates for practice (7,8) and the limited nature of student engagement in authentic clinical activity (66) also questions the extent to which they are able to become full participants through legitimate peripheral participatory practices.

**BOX 5.4 Focus on: Vygotsky**

Consider the mediated nature of learning activity

Vygotsky drew attention to the ‘tools’ that we use to ‘mediate’ a learning experience, be it the language we use to explain or guide, or the tools we use to exemplify, such as handouts, paper cases, X-rays and patients-as-cases. This can help us look more purposefully at informal learning encounters, and recognise and make explicit the everyday tools and learning resources we use.

Identify learners’ needs and learning potential

Vygotsky drew a distinction between what he termed the *zone of actual development* (what the learner can actually do unassisted) and the *zone of proximal development* (what the learner can do with some assistance or guidance). Learning is what takes place in the zone of proximal development, where we guide, assist, support and coach our learners. In working with students and trainees, therefore, it is important to recognise what they can do independently and then to work out how we can scaffold their learning so that they can move forward.

Engage ‘more knowledgeable others’ in the learning process

Vygotsky saw engagement with peers and others in the environment as an essential prerequisite for learning to take place. Recognising and valuing the contributions made by all members of the care team and the learners’ peer group are essential to effective learning in the workplace.

**BOX 5.5 Where’s the evidence? Situated learning**

Lave and Wenger developed their viewpoints on learning through ethnographic studies of traditional ‘apprenticeships’ as diverse as the apprenticeships of Yucatec midwives, Vai and Gola tailors, butchers, quartermasters and members of Alcoholics Anonymous. (60) From this work they developed ideas around situated learning and communities of practice, both of which have been influential on thinking about informal and work-based learning generally and, increasingly, in medical education specifically. Claims have been made for the value of drawing on their viewpoints when looking at work-based learning in medicine; (31,32,52,62–64) however, few studies have been undertaken to explicitly explore the extent to which their claims are true of medical education.

A qualitative study of medical student learning on clinical attachments supported the idea that attachments could be seen as times spent in communities of practice, albeit in a descriptive sense. The limits placed on student engagement in authentic work-based activity, the extent to which students and their teachers identify the learning resources embedded in this day-to-day activity and the hierarchical (and sometimes authoritarian) stance towards teaching and learning limited the extent to which this claim could be supported. (65) Likewise, a qualitative study of general practice training revealed that registrars may not be able to become full participants in the practices of a community, nor may they be able to access and engage with all of the community members to develop shared understandings of practice. (63) The work around preparedness of graduates for practice (7,8) and the limited nature of student engagement in authentic clinical activity (66) also questions the extent to which they are able to become full participants through legitimate peripheral participatory practices.

Socio-cultural theorists see the distinction between learning and working (or practice) as being artificial. They start from the assumption that learning is part and parcel of our everyday experience and practice. So, for example, when we talk to our colleagues about patients we are having difficulty with, or we ‘think aloud’ management options on the ward round, we are engaged in both a working activity and a learning activity. Our understanding of each other, our patients and their illnesses is influenced by the conversations we have and this becomes part of the learning in the workplace. When we encounter a complex patient or a complex situation, we draw on the ‘learning resources’ around us (our peers, our seniors, other members of the healthcare team) to consider how to move forward. We might consult other types of resource such as internet search engines, but seldom do we immediately ‘rush off to be taught’ to address these issues. As students develop their practice, they are learning at the same time. Learning is therefore an everyday activity and is developed by joint participation. In other words, learning is ‘situated’ and collective, with a shift in emphasis from a focus on the
individual learner or teacher to one that focuses on the ‘team’ or ‘community’.

In recent years, the term ‘community of practice’ has been adopted by those in professional education and used, often uncritically, to capture a desire to foster collaborative working, be it face-to-face or online. However, its original use was much more specific and was to capture examples of situated learning in a range of ‘apprenticeship systems’ observed ethnographically by Lave and Wenger. (60) Their seminal text identifies a defining feature of learning in these contexts, that of legitimate peripheral participation, described as:

- a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice. A person’s intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a socio-cultural practice. (60, p. 29)

Four key ideas emerge from their work, which have particular relevance to work-based learning in medicine and newly emerging models of apprenticeship:

- learning is part of social practice
- learning takes place in communities of practice
- learning takes place through legitimate peripheral participation
- language is a central part of practice.

We now explore these in more depth, first, learning is part of social practice. Every day at work we encounter new situations, new patients, new colleagues, trainees or students that lead us to question what we know, what we do, and how and why we do it. This is clearly a ‘learning’ situation, although we might not always label it as such. Second, learning takes place in communities of practice, which can be identified and defined by common expertise. The practice of a surgical team or the psychiatric outreach team demonstrates this in that their practice is effective because of the shared endeavour, the collective ‘team think’ that leads to successful outcomes. If we compare these two ‘teams’, while each contains doctors, nurses and healthcare professionals, they are clearly distinct in terms of the specialist work they do, the ways they do this and the ‘cultures’ of their practice (how they dress, how they talk to each other and their patients, etc.). Clearly, within medicine there are many distinct communities of practice, and students and trainees need to learn how to participate within them and indeed, across them. Third, learning has a central defining process, that of ‘legitimate peripheral participation’, a process that enables the student to develop the expertise necessary to permit full access and participation in a community. When we delegate work to students and trainees we need to ensure it allows increasing engagement in ‘real’ work activity, from the periphery (e.g. scrubbing up to observe the surgical procedure) to more central core activity (e.g. leading the surgical procedure). It is important to note that the relationships described between ‘newcomers’ and ‘old-timers’ here are very different from the traditional hierarchical educational models of novice to expert. This is an important distinction as it recognises the valuable contributions students and trainees can make to shaping and developing practice and the impact they can have on the workplace. Finally, language is a central part of practice, not only in terms of learning from talk but rather in terms of learning to talk – a process of talking one’s way into the expertise. For example, when students and trainees ‘present cases’, with implicit structures and cultures of doing so – ‘Mrs Smith is a 55-year-old woman, who presented to A and E with a three-day history of...’ – they are learning ‘to talk’ medicine and therefore learning medicine itself.

Socio-cultural perspectives on work-based learning clearly offer some theoretical and conceptual tools to allow researchers and practitioners to analyse important aspects of work-based learning. The emphasis on learning as being something that encompasses the processes of ‘belong, becoming and identity’, as well as meaning making, (61) encourages closer attention to what others have termed the hidden curriculum of medicine itself.

Billett, in particular, argues the need to pay attention to the invitational qualities of the workplace, in terms of the ways in which the workplace provides and allows access to learning activities. (30, 67) A concrete example can be seen in obstetrics and gynaecology attachments for medical students, where male students are likely to access fewer hands-on learning experiences than female students due to patient preferences. (69) More subtle variations of opportunity may exist on the basis of ‘qualities’ attributed to students by staff. For example, more able students who express high levels of confidence, enthusiasm and interest in a specialty may access more learning opportunities than a shy or struggling student or one perceived to have limited insight into their own performance. In this latter case it may be that those who most need experience to develop confidence and competence are denied these experiences. (70) Despite these criticisms, social perspectives on learning can be seen as a way forward to understanding and therefore more effectively shaping the work-based learning opportunities offered to students and trainees.
Curriculum and Work-Based Learning: A Complex Relationship

In describing these different theoretical schools of thought, we have drawn out the ways in which work-based learning can be contrasted to more formal learning. The distinctiveness of work-based learning can also be highlighted in relation to the curriculum.

Traditional approaches to curriculum design, based in formal education, focus on the curriculum as transmission of a body of knowledge (e.g., pediatrics) or on the definition of desired end points and outcomes (e.g., a competent doctor). This is evident in the rise of outcomes and competency-based curriculum, which aligns to behaviourist and cognitive schools and derives from the work of Bobbit, Tyler and Popham. The emphasis is on the clear delineation of specific knowledge, skills and attitudes, which are seen as measurable outputs of learning.

The risk with this model as a framework for work-based learning is that it assumes that all worthwhile attainments are visible and quantifiable. That those external to the learner are best placed to identify what it is the learner needs and that learning itself is devalued with the emphasis on outcomes (to be signed off) rather than processes of learning. The emphasis on competence, as opposed to excellence, has also been questioned in the UK following the wholesale introduction of work-based curriculum and assessment tools in postgraduate education. (3)

When we turn to social theories of learning, however, we are able to identify two other approaches that resonate with our understanding of work-based learning. The ‘process curriculum’, drawing on a social constructivist perspective, focuses on the construction of meaning and collaborative engagement. As Stenhouse argues:

- The superficialities of the disciplines may be taught by pure instruction, but the capacity to think within the disciplines can only be taught by inquiry. (76, p. 38)

A process-based curriculum places importance on the relationships between trainer and trainee and the outcome of their interaction. It is grounded in the individual experience of the trainee resulting from their clinical and professional experiences. A process curriculum assumes that trainers have experience and knowledge, that they understand their role and have a mature and internalized concept of what they are trying to achieve with the trainee. The content of the trainee’s learning is to a great extent built on and derived from their experiences and is developed by promoting critical dialogue and thinking, reflecting both in and on outcomes and activity. In the process curriculum, both trainer and trainee seek to critically test knowledge, and the learning is continually adapted by both trainer and trainee. The consequence of such an approach is that learning outcomes can vary between trainees and are negotiable depending on the trainee’s capability. But the purpose of the curriculum is to extend the trainee and to seek to maximise their potential rather than simply achieve competence. The learner is actively involved and manages the process of learning with the trainer, and the interaction and relationship with the trainer is central to this process.

The contrast between ‘product’ and ‘process’ models of curriculum lead us to consider the appropriateness of each for the workplace. However, socio-cultural theories of learning focus on the workplace and work as the curriculum; in other words, there is little separation between participation in working life and learning. If the workplace is the curriculum, the challenge for those with educational roles in the workplace is to make the learning that can arise from working more explicit, and to ensure that learners are engaged in the process of seeking and accepting these opportunities to learn.

This is underlined by studies exploring the nature of work-based learning in clinical settings, which have emphasised the importance of:
- initiation processes to engage learners as part of the team (64)
- active involvement in patient care (66)
- access to conversations, coaching and feedback in order to foster professional thinking and skill development (78)

Constraints may arise in terms of the number of ‘learners’ attached to a particular setting and the nature and scope of work activity undertaken by the team. (66) It is important to emphasise that if the workplace is the curriculum, the learning relationships to be developed must extend beyond those between individual learner and teacher to encompass the whole team. (31) More recent framings of apprenticeships adopt these broader perspectives on learning and curriculum and identify the ways in which the workplace can both expand and restrict opportunities for learning.

Implications for the Clinical Teacher

The question reasonably arises: ‘What does this all mean for an individual clinical or educational supervisor?’ The direct implications can be summarised as follows.

1. Learning is part of everyday social practice
   Implication: we need to make learning opportunities explicit to our learners. We also need to make explicit specific workplace cultures and practices to help students and trainees ‘make sense’ of what they see, hear, sense and do.

2. Teams can be seen as ‘communities of practice’, which are identified and defined by their shared expertise
   Implication: we need to involve the whole team (community) in supporting student/trainee learning.
3 Novices become experts through participation in communities of practice

Implication: we need to consider the ways in which we can meaningfully involve our students/trainees in workplace activity.

4 Workplaces do not always readily invite learners in and do not always offer equal opportunities to all learners.

Implication: we need to consider how we can create the right conditions for learning to take place in our workplace and to ensure certain students or groups of students/trainees are not inadvertently disadvantaged.

5 Horizontal learning is as important as vertical learning in the workplace.

Implication: we need to understand what our students/trainees already know (where they are coming from) and help them to use it to make sense of what they see, hear and do in the workplace.

6 ‘Talk’ is a central part of practice – learners need to ‘learn to talk their way into expertise’ rather than just learn from the talk of an expert.

Implication: we need to find strategies to help our students and trainees talk themselves into the expertise, by using techniques such as ‘thinking aloud’ and case-based discussion.

7 Students and trainees learn from their entire setting

Implication: we need to consider the ways in which conceptions of work-based learning in medicine. Developing safe and effective supervision strategies will be key, as will be the need to draw on new models of apprenticeship that value the relationships between and contributions of other members of the team. Finally, the rise of competency-based models of education, training and assessment brings a risk of a ‘tick-box’ mentality to training that must be challenged. The focus on process aspects of the curriculum will be fundamental to the ongoing development of trainees.

Throughout this chapter we have drawn attention to the ways in which conceptions of work-based learning can shape our practice, and the importance of a critical engagement with theoretical perspectives on learning, which can illuminate ways in which we can best support work-based learning in medicine. We have argued that social theories of learning in particular, which emphasise the social, participatory, mediated and context-specific aspects of learning, are best placed to support our activity. In the final section we will summarise the implications for those who organise, manage and deliver education and training in the medical workplace.

Developing and Promoting Work-based Learning

Implications for clinical teachers

Reviving apprenticeship demands a change of mindset from one that focuses on ‘sitting at the master’s feet’ to one that focuses on the community, that is, a collective model of newcomers and old-timers working and learning together. The named supervisor can assist this process by ensuring appropriate orientation to patient care and teamworking, and by highlighting...
opportunities to work and learn with all members of the team, including patients, carers and peers. Effective clinical teaching will involve planning for learning, which includes making sure that learners are open to the learning opportunities that arise through work. The need to make the implicit ‘explicit’ arises as a key factor here (see Box 5.6).

A second shift of mindset may be from that of ‘teacher’ to ‘facilitator of learning’ to ensure that precious protected teaching time is not wasted. This will mean ensuring that you have a clear sense of the starting points of individual learners and that you have identified what they can do with the assistance of a more knowledgeable other, who may be one of their peers or another team member, rather than the named supervisor. Kilminster’s guidance on effective supervision is particularly helpful here (82).

The effective use of authentic, work-based assessments can be invaluable. Learners provided with appropriate support are able to access a broader range of working, and therefore learning, experiences. The emphasis on learning through participation with other team members allows the supervisor to be more targeted and effective with time set aside for teaching. Conceptualising this as time set aside for developmental conversations may help this process. The importance of shared talk, learning to talk and to articulate reasoning, cannot be overemphasised here. Launer’s model of narrative-based supervision is flexible enough to encompass formal and informal supervision sessions as well as the skills needed to conduct case-based discussion more effectively (83).

**Implications for educational leaders and managers**

Those charged with responsibility for overseeing the training of individuals (e.g., educational supervisors) or groups of trainees (e.g., directors of medical education, training programme organisers) can build on the strategies for clinical teachers highlighted above. Reconceptualising training as an opportunity for an ‘expansive apprenticeship’ leads to a closer consideration of the value of time spent in a range of clinical settings (albeit for relatively short periods compared with old) and the need to balance this with time ‘out’ for formal training and thinking time. Seeing induction as an opportunity to orientate learners to ways in which to make the most of the learning that happens in the workplace will be key. This will include:

- making explicit the value of learning through working
- supervision as an opportunity for developmental conversations
- work-based assessment as the key tool to identify learning needs and ensure regular and targeted feedback
- the cultural expectation of learning through teamwork.

Peer learning should be emphasised and explicitly valued, with the positive impact of mentoring relationships being explored. Interprofessional induction helps strengthen the value placed on working and learning in teams that go across professional boundaries.

**Implications for faculty developers**

Swanwick argues that the professionalisation of medical education, increased accountability and aspirations to excellence have heightened the attention being placed on faculty development in medicine (84). In the UK, there is a growing expectation that all doctors who teach will undertake suitable training and be willing to demonstrate their competence to carry out their roles (85–87). However, attention has been drawn to the organisational deterrents to engagement in faculty development (88) and it is worth noting that historically this activity has been based within medical schools (with the resulting emphasis on formal teaching) rather than the clinical workplace. If, as we have argued, a revival of medical apprenticeship requires shifts in mindset as well as practice, faculty development has the potential to be invaluable. Clearly there are some areas where developing teaching and assessing skills will be necessary. Norcini, for example, argues that faculty development is key to the successful use of assessment methods based on observation of routine encounters (89). Faculty development that moves beyond a focus on teacher competence to a concern with the need to foster a critical dialogue between those who share responsibility for medical education and training is vital (62, 65, 90). Faculty
developers working with clinical teachers should be tasked with sharing insights into work-based learning that draw on social and participatory schools of thought rather than the cognitive models that dominate the formal educational arena. Approaches to faculty development that recognize the value of coaching, mentoring and peer observation of teaching will model the social and participatory aspects of learning through work and can be balanced with more traditional workshop-based activity focusing on skill rehearsal, dialogue and feedback.

Conclusion

The value and importance of work-based learning has never been clearer, nor the challenges faced greater. Reform of healthcare, medical education and training are eroding time-served approaches to training and demand a revival and creation of new models of apprenticeship. Conceptions of work-based learning, alongside a closer examination of educational theories and perspectives, may provide us with the tools to do this. While it will be important to hold on firmly to the time-honoured features of apprenticeship, rooted in a developmental relationship between trainer and trainee, there are opportunities to embrace opportunities for learning as active participants in patient care, supported by peers and colleagues within the communities in which we work and learn.

References

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Further Reading