

# Supporting medical students' workplace learning: experience-based learning (ExBL)

Tim Dornan, University of Manchester Medical School, Manchester, UK

Albert Scherpbier, Institute for Medical Education, Maastricht University, the Netherlands

Henny Boshuizen, Open University of the Netherlands

## INTRODUCTION

Many health professionals crave to know how to teach medical students, and cannot find clear answers, let alone evidence-based ones, in contemporary publications. This article gives practical answers, yet it is evidence based because it derives from research into clinical teaching and learning conducted in the Universities of Manchester and Maastricht.<sup>1</sup> The clinical teachers of today have to distance themselves from their warmly remembered days when students were few, in-patients were many, hospital stays were long and cardiac diagnoses were made with the stethoscope.<sup>2</sup> They must locate education in their clinical work by fostering a warm social climate in their practise. They should focus their attention on individual students' learning, not on their teaching; situate students' learning within their interactions with patients; support students, and challenge them in a way that makes them supported participants in practice at the highest level of involvement that their ability and the clinical situation permits, and adapt their behaviour student-by-student and situation-by-situation. After defining some terms, we use the experience-based learning (ExBL) model (Figures 1 & 2) to give practical advice on how to be a facilitator of students' clinical learning (Box 1).

## EXPERIENCE IN THE WORKPLACE

Despite their different surface features, out-patient clinics, hospital wards, general practice surgeries, emergency departments, day surgery units and operating theatres are all places where doctors work, students learn to work and where students might later pursue their careers. So, clinical education is located in the workplace, defined as a place where students, doctors and patients come together in the conjoint pursuit of clinical care and learning. Students learn from experience, which we define as authentic (real as opposed to simulated) human contact that helps students learn about health, illness and disease, and how to be a doctor.

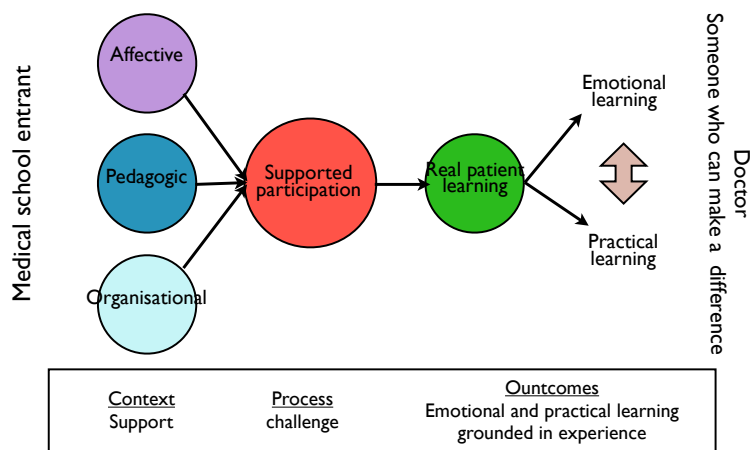


Figure 1. The experience-based learning (ExBL) model

## LEARNING RATHER THAN TEACHING

There are good reasons for shifting the workplace educational focus from teaching to learning. Students are learning even when their teacher's mind is wholly focused on providing clinical care. The subject matter learned from clinical encounters goes far beyond what students are explicitly taught. A focus on learning resolves any dichotomy between the taught and learned curricula, and helps students learn the hardest yet most important subject matter of all: how to be effective workplace learners. Focusing on learning means paying at least as much attention to the conditions for and processes of learning presented in Figure 1 as to the subject matter represented by patients. It does not mean withholding support and direction, a some clinicians seem to think.

## FIRST, DO NO HARM

Students often say that they are learning the profession of medicine in order to make a difference (to humanity). They look on practitioners with envy and trepidation. They envy their ability to make a difference; at the same time, students aspire to be like their role models, but are afraid of doing more harm than good when given responsibility.

However, students can make a difference even before they are clinically competent: nine out of ten unselected patients find it beneficial to contribute to students' learning,<sup>3,4</sup> so skilled teachers can conduct consultations to both students' and patients' mutual benefit. Bedside teaching, in contrast, is a rich source of mutual harm, when all parties except an insensitive teacher are embarrassed by the collective invasion of a patient's privacy. Students learn best when they do not fear harming patients and do feel they are helping doctors make a difference.

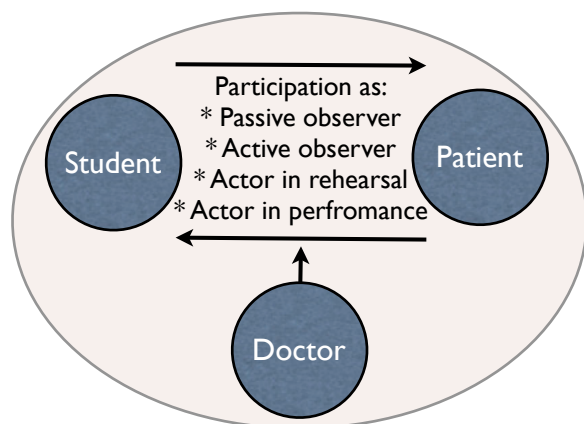


Figure 2. Student-patient-doctor triad

## PARTICIPATION: THE CORE CONDITION FOR LEARNING

Students learn by participating in activities of the workplace, particularly ones that are challenging. The exact definitions of participation and challenge vary according to the personal attributes and seniority of individual students, and depend on the case complexity. Box 1 and the simplified schema in Figure 2 explain the concept of participation.

There are three types of actor in the workplace: patients, doctors and students. The type of participation students are aiming towards is making a difference to patients by interacting with them in the role of doctors. Box 1 lists four roles in which a student may be a participant. A passive observer is a fly on the wall. A schoolchild visiting hospital for work experience, for example, might experience going into theatre during an operation as participation, without even talking to clinical staff or seeing the patient. However, a third-year medical student would likely find that passive experience a non-participatory one. Observation does not have to be passive, and the surgeon could turn the third year's experience into a more participatory one by discussing the operation with them. A student told to go and take a history from a patient whose history has already been taken by a doctor is an actor in rehearsal. Taking a history is the action of a doctor, but replicating an action purely for learning purposes is rehearsal. Acting in rehearsal may be challenging enough to a junior student, particularly if the patient is very ill. A senior student would probably not experience that rehearsal as participation. On the other hand, taking the history on behalf of a doctor – being an actor in performance – would be more of a participatory experience. In theatre, the senior student would need to hold a retractor or go to the blood bank when the patient haemorrhaged in order to have a feeling of participation. Students progress through the four levels of participation and come progressively closer to making a difference as they progress through the medical programme. Teachers can accelerate progression by creating conditions for students to participate at higher levels, and by being prepared to share their expertise.

## PROVIDING CHALLENGE IN A SUPPORTIVE ENVIRONMENT

Although modern-day students are supposed to regulate their own learning, even the most motivated and able of them do so best in supportive workplaces. Concentrating on learning rather than teaching does not mean leaving students to grope around in intellectual darkness. The paradoxically simple way experts address complex problems can provide a good piece of intellectual scaffolding that is worth a thousand of the factual bricks that less expert teachers tend to impart. Being supportive does not preclude being challenging; on the contrary, support makes it safer for students to face challenges. Good teachers allow uncomfortable silence to continue until a student volunteers a half-remembered fact; they do not ridicule wrong answers; they challenge students to attain greater levels of participation (active rather than passive observer, or actor in performance rather than actor in rehearsal) whilst providing a safety net that ensures no harm is done to patients. In the out-patient clinic, this can be achieved by asking the student to conduct a consultation while the practitioner looks on silently, available to be called on for help when needed.

### Box 1. Four levels of participation

- Passive observer

Example: a young person tasting medical student life, who is allowed to observe an operation.

- Active observer

Example: a student attending an out-patient clinic who is drawn into a three-way conversation between doctor, patient and student.

- Actor in rehearsal

Example: a student previously taught to take a diagnostic history on a standardised patient, who practises history taking on a patient.

- Actor in performance

Example: a student who helps a casualty officer by taking blood and setting up a drip on an acutely ill patient.

Engaging professionals-to-be in active learning calls for various types of support. The ExBL model (Figure 1) recognizes three types of support: affective, pedagogic and organisational. Whereas the term organisational is a lay one, the less familiar terms affective and pedagogic can loosely be equated with heart and head, or emotions and intellect.

### AFFECTIVE SUPPORT

Students are emotionally challenged by feeling like little fish in a big pond, and by observing patients' negative experiences and emotions, feeling helpless because a mere student is so far from being able to make a difference. Teachers can reduce the adverse effects of students' inevitable negative emotions by creating a learning environment that has a warm climate, is respectful and supportive of patients, makes students welcome, draws students into the team, helps reticent ones participate, stops them feeling like 'spare wheels', does not belittle them and acknowledges negative emotions.

### PEDAGOGIC SUPPORT

Teachers can help students participate in practice and learn from participation by demonstrating familiarity with the curriculum, suggesting learning objectives and ways of achieving them, helping students apply theoretical knowledge to authentic clinical situations, creating tasks that allow them to participate, and instructing them. Instruction, in this context, means demonstrating how to apply skills to real patients with disease, supervising students' attempts to do so, and giving feedback on their performance. In an out-patient clinic, for example, pedagogic support includes orientating students to patients and their diseases before they enter the room, checking students' knowledge and learning needs, arranging for students to interview patients before the consultation proper, arranging the furniture so students and patients feel included, promoting three-way discourse and debriefing students afterwards. Role modelling is another very important facet of pedagogic support.

### ORGANISATIONAL SUPPORT

Another role of clinical teachers is to open up opportunities for participation. That may entail optimizing the curriculum structure and sequence, placement length or continuity of attachment to individual teachers, and group sizes. Within individual placements, organisational support means optimising timetables, and otherwise creating opportunities for supported participation.

## WHAT STUDENTS LEARN FROM PARTICIPATION

### **Real patient learning**

Interacting with real patients adds vital ingredients to students' learning: patients' faces, stories and perspectives. Real patients illustrate the complexity and time course of illness, and put the realities of clinical practice into a wider and more holistic perspective.

Interaction with real patients motivates students by showing how much they have to learn before they can truly make a difference, focuses their learning activities, consolidates and links learning, and helps them remember what they have learned. Real patient learning leads to two major categories of outcome: practical and emotional.

### **Practical outcomes**

#### *Acquiring skills*

Practical outcomes of workplace experience include the transfer of skills to practice, and the acquisition of new skills that can only be learned, or are best learned, in practice, particularly workplace communication skills.

#### *Applying knowledge*

Likewise, knowledge that a student has mastered in theory must be transferred and applied to the work setting, and can be strengthened, deepened, broadened, contextualised and integrated as a result. Workplace experience helps students develop the intellectual skills of practice, and understand the social and psychological determinants of health and disease. There are also types of knowledge known as implicit and tacit knowledge (know-how) that can only be acquired in relation to authentic workplace tasks.

## Box 2. Behaviours displayed by skilled clinical teachers and curriculum leaders

Skilled teachers:

1. Reconcile two competing pressures by locating student education within their delivery of patient care.
2. Mediate interactions between students and patients with consideration to both parties' sensitivities: they take more than four learners to the bedside only with especial sensitivity.
3. Help students see how patients respond positively to them and their learning.
4. Mediate interactions with patients that make students feel like participants in practice.
5. Help students participate by being supportive whilst challenging them to participate at the highest level their experience and the complexity of the clinical situation permits.
6. Do not hold back from showing personal warmth towards students.
7. Get all their staff to make the learning environment supportive.
8. Show they know what knowledge and skills are expected of students, and help them to apply those attributes to authentic clinical situations.
9. Organise the curriculum so that earlier stages support students' learning in the later stages.
10. Organise the health care organisations that deliver the curriculum, and clinical units that provide placements, to optimise participation.
11. Regard real patient learning as an end in itself: something students cannot get too much of.
12. Ensure students apply their knowledge to practical situations, apply the skills they have learned in simulation to authentic situations and learn how to learn.
13. Are sensitive to the emotional dimension of students' learning, which is sometimes the most taxing one. Medical students are not just learning medicine – they are becoming doctors.
14. Help students apply new practical learning to the benefit of their emotional learning, and vice versa, and help them translate their developing competence into more complete participation in practice.

### *Learning to learn*

An important practical outcome of workplace experience that is very easy for clinical teachers to overlook is becoming better able to learn. By participating in practice, students can learn immediate necessities for workplace survival, such as how to behave, what to expect from clinical staff, how to make sensible choices, how to handle difficult situations, how to manage time, and how to learn reflectively. In the longer term, students can become effective lifelong learners by being able to recognise or seek out situations with high learning potential. They set specific, measurable, achievable, realistic and time-bound learning objectives, keep up with advances in medical knowledge and apply them at the point of care, and concentrate their learning efforts on activities with the best returns.

### **Emotional outcomes**

Through participation, students develop a sense of identity, build confidence, sustain motivation, and come to feel rewarded and satisfied. Through experience, they can increase their self-awareness and develop empathic understanding of patients' situations. They can socialise in the communities of practice to which they will become full members when they qualify.

## LEARNING BEGETS LEARNING

The workplace is a great integrator of learning. Not only does it help students become practically competent and learn emotionally, but it does the two simultaneously and in a mutually reinforcing way. Becoming practically competent reinforces students' sense of identity, motivation and confidence, and vice versa, which in turn make it easier to participate. Within those feedback loops lies the potential for virtuous or vicious spirals of success or failure to become established, which teachers can use their relationships with students to identify and modulate for the better.

## CONCLUSION

ExBL places students' participation in practice at the centre of their progression from a medical school entrant to a qualified doctor, who can make a difference to humanity. Participation means interaction with patients, more or less directly mediated by doctors.

Students participate in roles ranging from passive observer to actor in performance. The role they adopt in any particular situation is determined by their seniority, the complexity of the situation, the supportiveness of the learning environment and the individual student's responsiveness to challenge. Participation leads to practical outcomes – the acquisition of skills, the application of knowledge and an improved ability to learn – and emotional outcomes, which include the development of a sense of professional identity, motivation and confidence. Practical and emotional learning are mutually reinforcing, and reinforce the ability of students to participate. Clinical teachers help students to participate – and challenge them – by supporting them. Support can be categorized as affective, pedagogic or organisational. So the ExBL model reframes clinical teaching as supporting participation.

## REFERENCES

1. Dornan T, Boshuizen H, King N, Scherpbier A. Experience-based learning: a model linking the processes and outcomes of medical students' workplace learning. *Med Educ* 2007;**41**:84–91.
2. Markel H. The stethoscope and the art of listening. *N Engl J Med* 2006;**354**:551–553.
3. Doshi M, Acharya S, Wall D. Mentally ill inpatients' experiences and opinions on seeing medical students: a questionnaire study. *Med Teach* 2006;**28**:568–570.
4. Mavis B, Vasilenko P, Schnuth R, Marshall J, Jeffs MC. Medical students' involvement in outpatient clinical encounters: a survey of patients and their obstetricians-gynaecologists. *Acad Med* 2006; **81**:290–296.

Medical students spend over 85% of their clinical learning time on hospital placements, but there has been comparatively little detailed analytical investigation. This work therefore seeks to further the understanding of clinical learning in hospitals. The study adopted a focussed ethnographic approach using quasi-participant observation of third-year medical students, on one hospital placement over a period of two years. Observations revealed repeating types of learning episodes, which are

! CONTINUE READING.

discovery.ucl.ac.uk.Â How and what do medical students learn in clerkships? Experience based learning (ExBL). References Billett S. Learning in the Workplace: Strategies for effective practice. 2001. Crows Nest, Australia: Allen & Unwin. Figure is an adaptation and expansion of Three Factors of Workplace Curriculum, 180-186. Dornan T, Boshuizen H, King N, Sherpbier A. Experience-based learning: a model linking the processes and outcomes of medical studentsâ€™ workplace learning. Medical Education. 2007; 41: 84-91. Office of Research and Development in Medical Education. Supporting medical studentsâ€™ workplace learning: experience-based learning (ExBL). The Clinical Teacher, 6, 167â€“171. Article Google Scholar. Dornan, T., Scherpier, A., King, N., & Boshuizen, H. (2005b). Clinical teachers and problem based learning: a phenomenological study. Medical Education, 39, 163â€“170. Article Google Scholar. Eraut, M. (2004). Informal learning in the workplace. Studies in Continuing Education, 26, 247â€“273. Article Google Scholar.Â Medical studentsâ€™ reactions to an experience-based learning model of clinical education. Perspectives on Medical Education, 2(2), 58â€“71. doi:10.1007/s40037-013-0061-4. Article Google Scholar. published literature and conducted empirical research into clinical workplace learning.1 The product was a theoretical model of how medical students learn in clinical workplaces, which we termed â€œExperience based learningâ€ (ExBL). Although published in a thesis, the literature review is not readily accessible to other scholars.Â Medical students are also helped to be supported participants by human interactions and curriculum factors. We identified three types of support: Organisational, pedagogic, and affective support, a classification that has been validated independently by another researcher (Lyons, personal communication). Figure 1 shows how ExBL considers the context, processes, and outcomes of learning. Supporting medical studentsâ€™ workplace learning: experienceâ€“based learning (ExBL). Tim Dornan. Search for more papers by this author.Â Many health professionals crave to know how to teach medical students and cannot find clear answers. Students are learning even when their teacherâ€™s mind is wholly focused on providing clinical care. Teachers can accelerate progression by creating conditions for students to participate at higher levels. Another role of clinical teachers is to open up opportunities for participation. Practical and emotional learning are mutually reinforcing, and reinforce the ability of students to participate. About. Related.