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Conn, R. L., Speyer, F., Davison, G., & Dornan, T. (2022). Experience based learning (ExBL): an alternative approach to teaching medical students on paediatric placements. *Archives of Disease in Childhood: Education & Practice.* https://doi.org/10.1136/archdischild-2021-322077

Published in:
Archives of Disease in Childhood: Education & Practice

Document Version:
Peer reviewed version

Queen's University Belfast - Research Portal:
Link to publication record in Queen's University Belfast Research Portal

Experience based learning (ExBL): an alternative approach to teaching medical students on paediatric placements

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The issue

You regularly teach medical students on paediatric clinical placements in your hospital. Sometimes you lead tutorials or bedside teaching, but mostly it involves medical students coming to the ward, joining ward rounds, or sitting in on clinics. Most of the time you are too busy with clinical work to devote much time to them, and you are unsure if the medical students get anything out of it.

While all doctors have been through medical school, they often struggle to know what medical students need to know and how best to help them learn it. The problem is exacerbated because clinicians, whilst shouldering most teaching responsibility, have to contend with competing priorities, time constraints, and, often, minimal instruction on how to approach the task.

In paediatric placements, which provide students' main undergraduate training in caring for children and young people (CYP), this issue is especially important. Besides learning about childhood conditions, students have to get to grips with handling small babies, negotiating with fractious toddlers, communicating with adolescents, and reassuring worried parents and carers – daunting tasks even before illness is thrown into the mix. Thus, while paediatrics is generally a welcoming speciality which affords medical students hands-on opportunities, many find the placement difficult,[1] potentially leaving them underprepared to care for CYP after qualification and less inclined to choose paediatrics as a career.[2] Clinicians might also end up feeling dissatisfied when they find students less engaged than they expected.

This article re-examines what paediatric placements should be about, offering clinicians an alternative approach to teaching medical students in a meaningful way, within the constraints of their clinical workload. We introduce Experience based learning (ExBL),[3] outlining its central principles of promoting participation and supporting reflection, and carrying these forward into practical suggestions for how to support medical students on placement.

Experience based learning

[Insert Figure 1 around here]

Figure 1. Supporting Experience based learning

Experience based learning (ExBL) is a framework, derived from in-depth study of how medical students learn in clinical settings, to guide clinicians involved in teaching medical students. Its central message is that medical students become capable doctors by participating in patient care, and by reflecting on these experiences (Figure 1). In this light, clinicians' role in helping medical students learn is less about teaching, and more about supporting them to take part in and reflect on their experiences with real patients. Box 1 offers more detail on ExBL and how it was developed.

Promoting participation

Participation is a ladder with three steps, ascending from observation, to rehearsal, to contribution. Observation is being present in practice without being directly involved. Rehearsal is performing the functions of a doctor but only for educational purposes. Contribution is when students take direct responsibility for performing tasks of practice. Students benefit at all levels of participation (and, in practice, often use a blend of approaches), but generally learn best by working at the highest level their ability and the clinical situation allows. Clinicians can help strike a balance by assessing situations and engineering a level of participation that takes students just outside their comfort zone but not beyond their limitations. They can 'broker' students' interactions by checking that patients are happy to be involved and setting out what each individual's role will be. They can 'activate' observation, turning it from a passive process into one that draws students into clinical care. They can transform rehearsal into contribution by, for example, encouraging students to document their encounters in medical records rather than making notes only for personal study. Beyond these roles, clinicians can also ask medical students to 'add value' by, for example, spending extra time with patients to support them, or by researching and presenting evidence to guide management in complex cases.[4]

Supporting reflection

Participation is a pre-requisite but, on its own, may not lead to meaningful learning. To maximise the learning that medical student derive from experience, ExBL encourages clinicians to support them in reflecting on their involvement in patient care ('Real patient learning').[3] Drawing on their own experience, clinicians can help students consolidate foundational knowledge, learn how doctors reason and talk, and develop skills like time management, prioritisation, and self-directed learning. Becoming a doctor, though, is as much about developing values and identity as it is about acquiring knowledge. Clinicians can play a vital role in this by helping students make sense of their experiences,

manage their emotional reactions, and develop the professional values that prepare doctors to practise holistically, compassionately and sustainably.

What is it?

Experience based learning (ExBL) is a theory of how medical students learn in clinical settings that underpins guidance for clinical teachers.

How was it developed?

ExBL was devised from extensive study, with three versions published since 2007, combining evidence synthesis, empirical research, learning theory, and input from experienced medical educators. The latest version, published in 2019, was derived from a systematic literature review of 124 articles, which investigated relationships between medical students' capability and educational processes i.e. support given by clinicians to promote their participation and real-patient learning.

Why is it needed?

Medical education has changed. Shorter placements, concerns about patient safety, and the rise of off-the-job teaching means that medical students now get little hands-on experience before qualification, leaving them underprepared to begin work. This makes care less safe and may also contribute to the growing problems of attrition and burnout.[5] There is a pressing need for an alternative approach to teaching that enables students to gain experience, in supported ways, and within the time constraints of busy clinicians.

What is its scope?

While ExBL also addresses placement organisation and planning, its main focus is on how clinicians support medical students 'on the ground'. It doesn't consider preparation for high stakes assessments, although the experience that ExBL offers may help students with this. Nor does it include off-the-job teaching, such as tutorials, e-learning or simulation, which do not include real patients. While ExBL was based specifically on evidence about medical students, educators may also find it can be usefully adapted and applied to postgraduate trainees.

Where can I find out more?

We published ExBL as an AMEE Guide (published by the Association for Medical Education in Europe), available as a free download,[3] and in abridged form as an open-access article.[6] This Guide contains a full discussion of how ExBL was developed and outlines the evidence base that underpins its effectiveness.

Box 1: Background to Experience based learning

Experience based learning in paediatric placements

While many paediatric educators already provide fantastic opportunities for medical students to get involved in patient care, evidence suggests that most medical students' hands-on experience is limited.[7] Table 1, carrying forward the principles of ExBL, offers ideas for how clinicians can promote participation and support reflection within paediatric placements (and may also offer transferable suggestions for postgraduate training).

	Promoting participation	***Supporting reflection***
Getting experience	Adapt to students' experience levels, setting tasks appropriate to their abilities	Help students to reflect on their prior experience and capabilities and to set goals.
	Act as a broker, checking patients are happy to participate and advising them on their role.	Empower patients to actively help educate students.
	At clinics, enable students to see CYP independently (if a separate room is available) before reviewing together; build on students' contributions rather than starting afresh.	Offer supportive feedback to reinforce students' involvement, and pointers for managing future encounters.
	Use part-tasks to enable contributions e.g. ask students to examine CYP on ward rounds.	
Learning in the moment	Include students in consultations and encourage them to talk, even when you are leading.	
	'Activate' observation by asking students to actively listen for particular elements (e.g. 'what communication strategies were used?') and give you feedback.	Ask students to observe each other as a source of feedback and a starting point for discussions.
	Ask leading questions to facilitate students' contributions e.g. 'how do you think we could have explained that better?'; verbalise what you are doing and what you are thinking.	Use 'cognitive apprenticeship'[8] by explaining and thinking aloud, helping students to organise what they see and hear, and by encouraging students to say what they are thinking.
	In clinics and on ward rounds, briefly orient students to CYP's conditions.	Micro-teach – hone in on particular aspects of cases e.g. treatment of constipation in toddlers.
	Give the student the notes for the next patient while you finish up with the last; ask them to summarise CYP's backgrounds for you.	
	Teach CYP and students together – and be prepared to learn from them in return.	Ask CYP to offer students feedback on what they are doing.
Being part of the team	Invite students to be members of a community of practice by delegating small tasks: answering phones, entertaining CYP during assessments, greeting families at clinic, helping with procedures, and completing blood forms and growth charts under supervision.	Be available to answer queries; thank students for their contributions.

	Encourage students to write in medical notes so that it contributes to patient care.	Ask students 'What information would you want to know if you were called to review this patient?'
	Use your influence with other staff to legitimise students' presence and define their role as future colleagues e.g. 'Sara's going to help me on the ward round today'.	Bring students for coffee with the rest of the team; make conversation about non-clinical topics.
	Encourage students to spend time with other professionals and gain insight into their role in caring for children.	Discuss their experiences and relate them back to the role of a doctor.
Navigating complexity	Use observation to give insight into tasks that are important but cannot be delegated e.g. breaking bad news, performing safeguarding examinations, resuscitating newborns.	Help students navigate difficult emotions caused by e.g. observing parents being told bad news; gently encourage students to talk about their feelings and be prepared to share your own.
	Encourage students to attend and participate in meetings where complex cases are discussed e.g. multidisciplinary meetings, Schwartz rounds.	Model reflective practice by drawing on your own experiences; share memorable stories that students can remember and use.
	Help students approach complex CYP by setting part-tasks e.g. 'Could you find out about this child's development?'	Help students make sense of complex situations and patients by breaking them down for them.
	Be flexible: discretely intervene if things are becoming complex.	Debrief afterwards: ask students to reflect on things that were difficult, make positive comments about their approach, acknowledge that you also find things difficult, and offer insights into how you deal with it
Adding value	Encourage students to spend extra time with children and parents/carers, exploring their experiences, needs and values, developing relationships, and supporting them psychosocially.	Discuss the impact of illness on CYP and families, validating being caring as a role of a doctor; ask students how this knowledge could be used to improve patients' experiences.
	Ask students to educate CYP and parents/carers about conditions and treatments e.g. explaining advice leaflets, treatment plans, and discharge letters to them.	Check with students how they got on and be ready to address CYP's unanswered questions; encourage students to update you/teach you new things – 'what did you find out about that medication?'
	Ask students to read around challenging cases, search for evidence and present this to the team; ask them to contrast current management with best practice.	Ask students how this information could inform patient management; encourage them to question you about your practice e.g. 'Did the guideline say anything about whether neuroimaging is needed?'.
	Ask students to complete tasks that would support care and save you time e.g. compiling an investigation list/timeline of events, performing a literature search in response to a clinical query.	

Table 1: Applying Experience based learning within paediatric placements

Discussion

We believe that medical students are as enthusiastic as ever about learning to become doctors, and that medical educators are as enthusiastic as ever about supporting them to do so. Yet, arguably, advances in medical education have made it increasingly difficult for students to gain practical 'on the job' experience (a problem further exacerbated by the COVID pandemic). [5]

The complex drivers of this situation include: the increasing acuity and complexity of clinical care; a heightened emphasis on patient safety that means students must be seen to work within regulations and under appropriate supervision; the understandable preoccupation with high-stakes exams; undergraduate curricula that favour demonstrating competence over developing capability; as well as the perennial issue of time pressures on busy clinicians.[3,9] These issues, many of which arise from necessary developments in medical education, are more to do with systems than individuals; yet individuals - medical students - bear the consequences, with many left feeling underprepared to begin work and 'sitting ducks for psychosocial harm'.[5,7] Faced with these challenges, we argue that medical educators need an alternative approach to maximise medical students' clinical placement experiences. ExBL provides a practically oriented, forward-looking framework to empower clinicians, working within systemic constraints, 'to make the most of what they've got' by reintegrating clinical education and clinical practice. By implementing ExBL – Experience based learning - within paediatric placements, we believe that clinicians, medical students, and CYP all stand to benefit.

Acknowledgements

We would like to thank Dr Helen Monaghan for her valuable advice on the revisions to this article.

References

1. Hilder A. Paediatric placements - from the eyes of a medical student. *Don't Forget the Bubbles.* 2019. Available from: https://dontforgetthebubbles.com/paediatric-placements-from-the-eyes-of-a-medical-student/ (Accessed May 2021). doi:https://doi.org/10.31440/DFTB.18800
2. Bindal T, Wall D, Goodyear HM. Medical students' views on selecting paediatrics as a career

choice. *Eur J Pediatr* 2011;170(9):1193-1199. doi:https://dx.doi.org/10.1007/s00431-011-1467-9

3. Dornan T, Conn RL, Monaghan H, Kearney G, Gillespie H, Bennett D. *Experience Based Learning (ExBL): Clinical Teaching for the Twenty-First Century*. Dundee: Association for Medical Education in Europe, 2019. Available from: https://amee.org/getattachment/Covid-19/Guide-129-(CMcL)-Electronic.pdf (Accessed May 2021). doi:10.1111/j.1468-2486.2011.01061.x
4. Gonzalo JD, Thompson BM, Haidet P, Mann K, Wolpaw DR. A Constructive Reframing of Student Roles and Systems Learning in Medical Education Using a Communities of Practice Lens. *Acad Med* 2017;92(12):1687-1694. doi:10.1097/ACM.0000000000001778
5. Dornan T, Gillespie H, Armour D, Reid H, Bennett D. Medical students need experience not just competence. *BMJ* 2020;371. doi:10.1136/bmj.m4298
6. Dornan T, Conn R, Monaghan H, Kearney G, Gillespie H, Bennett D. Experience Based Learning (ExBL): Clinical teaching for the twenty-first century. *Med Teach* 2019;41(10):1098-1105. doi:10.1080/0142159X.2019.1630730
7. Illing JC, Morrow GM, Rothwell nee Kergon CR, et al. Perceptions of UK medical graduates' preparedness for practice: a multi-centre qualitative study reflecting the importance of learning on the job. *BMC Med Educ* 2013;13:34. doi:10.1186/1472-6920-13-34
8. Stalmeijer RE, Dolmans DHJM, Wolfhagen IHAP, Scherpbier AJJA. Cognitive apprenticeship in clinical practice: can it stimulate learning in the opinion of students?. *Adv Health Sci Educ Theory Pract* 2009;14(4):535-546. doi:https://dx.doi.org/10.1007/s10459-008-9136-0
9. Dornan T, Lee C, Findlay-White F, Gillespie H, Conn R. Acting wisely in complex clinical situations: 'Mutual safety' for clinicians as well as patients. *Med Teach* 2021;0(0):1-11. doi:10.1080/0142159X.2021.1951693