

Vocational thresholds: developing expertise without certainty in general practice medicine

Karen Vaughan PhD (Education)

ABSTRACT

INTRODUCTION: This paper argues that particular experiences in the workplace are more important than others and can lead to transformational learning. This may enable practitioners to cross 'vocational thresholds' to new ways of being.

AIM: A notion of 'vocational thresholds' is developed, aiming to help build an understanding of the most powerful learning experiences of general practitioners (GPs). Vocational thresholds takes its cue from the idea of 'threshold concepts' - concepts that transform perspectives and integrate previously disconnected or hidden knowledge, sometimes in ways that are 'troublesome' to previously held beliefs.

METHODS: The paper is based on a thematic analysis of 57 GPs' brief written accounts of a particularly powerful learning experience during their development. Accounts were provided in a conference session about an ongoing study of workplace-based structured learning arrangements in the fields of general practice medicine, engineering, and building.

FINDINGS: Most GPs' accounts focused on development of dispositional attributes that moved them to a new understanding of themselves in relation to their work and patients. Just under two-thirds picked out informal and formal collegial relationships within purposeful learning arrangements as pivotal. A third picked out direct experiences with patients as shifting their perspective.

CONCLUSION: The emergent idea of vocational thresholds is offered as a way to frame the most important learning experiences identified by GPs. It supports a focus in early and ongoing development beyond accumulating clinical expertise and skills (knowing and doing), to dispositional capability (being) - vital for practitioners negotiating inherent and daily uncertainty.

KEYWORDS: General practitioners; Medical education; Vocational education; Identity; Learning experiences; Threshold concepts

Introduction

General practice medicine, like many fields of practice, involves its learning practitioners in a journey of growing expertise over time and through varied experiences. Expertise for general practitioners (GPs) tends to accrue around several dimensions: existing clinical knowledge which is continually supplemented and extended; judgement about the application of that knowledge in a primary healthcare context; and dispositional

attributes. These enable GPs to 'be' GPs and to use their knowledge and skills *and* their dispositions - values, intentions, and attitudes - in their work.

The nature of general practice is complex and unstable.¹ GPs routinely face incomplete patient histories, undifferentiated conditions, and clinical reservations. This kind of uncertainty can occur in hospital-based work too, and medical specialists regularly confront the limits of knowledge. However, uncertainty can feel especially

J PRIM HEALTH CARE
2016;8(2):99-105.
10.1071/HC15027

CORRESPONDENCE TO:
Dr Karen Vaughan
Chief Researcher,
New Zealand Council for
Educational Research
(NZCER), PO Box 3237,
Wellington, New Zealand
karen.vaughan@nzcer.org.nz

WHAT GAP THIS FILLS

What is already known: Vocational immersion, apprenticeship, or learning through practice is an established way to learn in fields such as general practice medicine. We know less about which sorts of learning experiences are the most significant and why.

What this study adds: This paper develops the idea of ‘vocational thresholds’ as a useful way to identify and reflect on particular kinds of learning experiences in the workplace. Identifying what is transformational, irreversible, and sometimes troublesome in these experiences is likely to help practitioners build strong vocational identity for managing uncertainty.

pronounced in general practice because complex patient presentations (which can also occur in hospital contexts) are compounded by the community setting. Diagnosis is not undertaken by a team and work is largely conducted individually, treatment plans are subject to more negotiation, and there is limited ability to access diagnostic testing or hold patients for observation.

Doctors becoming GPs may experience the difference between hospital work and general practice as a difference between apparent (if not actual) certainty in hospital and more obvious uncertainty in general practice. They may also experience a repositioning of their status and existing proficiency. When they begin vocational immersion through the General Practice Education Programme (GPEP) they already have general registration and some – by no means complete – clinical knowledge. GPEP registrars are therefore more like ‘novice experts’ than practitioners in other occupational fields on a more straightforward novice-to-expert apprenticeship path.

The challenges in GP development are not just related to the technical aspects of doing the job, resourcing, or working arrangements. They are also about understanding oneself and one’s role – what, who, and how to ‘be’ as a GP. Experience and expertise will build over time, including proficiency with clinical pathways and ‘safety nets’. However, the centrality of the doctor-patient relationship and the community context mean a good deal of unpredictability and

incomplete knowledge will always be a feature of GP work. So the notion of ‘expertise’ needs to be cast in terms beyond linear knowledge accumulation and application. Registrars and GPs need to understand being good practitioners without conflating expertise with all-knowingness and the eradication of uncertainty.

Are there particular work experiences for GPs that are more important than others in their development? If so, are there ways to think about these experiences which could help GPs (and their teachers) meet the challenge of practice with inherent uncertainty? This paper suggests there might be such experiences and useful ways to understand them. It offers the emergent idea of *vocational thresholds* as a frame around learning experiences that are transformational in nature. It suggests this may help GPs to ‘know, do, and be’ as practitioners negotiating uncertainty on a daily basis.

‘Vocational thresholds’ builds on the idea of threshold concepts, which are theorised by Meyer and Land² as characteristically transformative of people’s perceptions and perspectives, and integrative of the previously hidden aspects in something being learned. Threshold concepts often involve irreversible or unforgettable shifts in thinking, and may sometimes also be troublesome in relation to previously held beliefs. They have mainly been used by tertiary educators to identify the ‘gateway’ ideas and pieces of knowledge that students most struggle to understand.

Although far less explored in research, threshold concepts also have an ontological or ‘way of being’ dimension. For example, social worker students need to learn to be reflective³ and university staff need to learn to be partners with community.⁴ Like threshold concepts, vocational thresholds are transformational and involve integrative learning. However they foreground the dispositional demands on learners in terms of how to ‘be’ over a focus on learning particular pieces of knowledge.

During a presentation to the 2014 Education Convention of the Royal New Zealand College of General Practitioners (RNZCGP) I introduced

the audience to an ongoing study of apprenticeship-like learning arrangements in the workplace involving around 43 learners in three different fields: general practice medicine; carpentry; and engineering. The study aims to understand how everyday workplace experiences could be better used for learning purposes. A full report on this study was recently published.⁵ The current paper analyses data produced through the presentation which explored an emergent idea from the wider study: that certain kinds of experiences in the GP workplace seem particularly valuable for growing vocational identity.

Methods

This report is based on analysis of 57 written accounts of powerful learning experiences provided by audience members (these experiences are not necessarily the same as ‘significant events’ or ‘critical incidents’ although they may overlap). Almost everyone in the audience was a GP, and details in the accounts make clear the responses were those of GPs.

The study has approval from the NZCER Ethics Committee (application 2013–27).

Adapting an aspect of Grossman *et al.*'s study of preparatory learning for careers in the clergy, teaching, and clinical psychology,⁶ I asked audience members to take 10 min to discuss with a neighbour a particularly powerful learning experience during their development as a GP. Audience members then anonymously recorded their individual accounts on a sheet of paper provided, with guiding questions: what happened; what was learned; and what forms of practice changed as a result. I asked for volunteers to hand in responses, with written permission for me to use the data for research publications and subsequent presentations. There were 57 responses with this permission.

A thematic analysis of the responses was conducted, using *Smartsheet* (project visualisation) tools. I took an inductive approach that let themes emerge from the data. I sought patterns in meaning by moving iteratively between the accounts and identifying and refining themes about learning content, impact, and context.

I created a working model of ‘vocational thresholds’ to analyse the learning described by respondents, with a view to using this model in the wider study (not reported on here).

FINDINGS

Few responses ($n = 9$) described significant learning related to distinct skills or pieces of clinical knowledge learned – for example, ‘breaking bad news factually and quickly’ (GP250) or collecting clinical evidence rather than relying on patient anecdote (GP236).

Instead, most responses ($n = 48$) offered accounts focused on the development of dispositional attributes for general practice. While most were stories about specific events and their impact, some were more general or focused on a particular time period (eg during a rural attachment or while working with a particular teacher). Sometimes responses included reference to improvements in consultation or communication skills. However, these were not described in terms of discrete skills for tasks or techniques but rather as part of the GP's context of changing values, outlook and inclinations.

Dispositional development with mentors and purposeful learning arrangements

Of the 48 responses, 30 (62.5%) focused on dispositional development learning described through informal discussions with mentors or colleagues and/or purposeful learning arrangements (eg debriefings, video analysis of their consultations). Eighteen cited purposeful learning arrangements as having a key role in transforming their practice.

Seeing myself on video, I couldn't believe it – I was like a hawk attacking a mouse. (GP276)

My GPEP teacher made himself vulnerable and allowed us to be human, make mistakes. No pretence about being perfect or all-knowing, which was the med school culture from lecturers and consultants. (GP280)

I had a fantastic trainer who helped me debrief after a challenging consultation. It helped me understand

that the patient doesn't always have an agenda or need a solution but just the opportunity to offload. He called it 'going for a walk round the garden' and the conversation I had with him is one I still remember and use when faced with a similar situations. It helped me understand and appreciate the impact our conversations with patients have. (GP260)

Six described a mentor or colleague providing a 'mirror' on practice, where respondents had observed them in consultation. Observing an expert in action allowed respondents to gain a holistic view, seeing the connections between consultation skills, GP character, and improved patient care. Most of these responses described deliberate observation opportunities, although several seemed serendipitous.

I observed a consultation from my GP teacher that unfolded in unexpected fashion – a diagnosis I didn't feel I could make. By witnessing open-ended questions, combined with GP knowledge and processing, a simple rash turned into a diagnosis of OCD. (GP239)

[a paediatrician] came on house call with me as I was concerned. Watching his exam and planning with family was powerful learning for me. (GP256)

Another six described informal discussions with mentors and colleagues as provoking changes in their practice – for example, referring to 'the coffee room' and 'soaking in the culture of care and concern for patients' life stories' (GP277) and learning from a 'wise GP' battling depression who advised against being too hard on oneself 'to be excellent all the time'. (GP261)

Eight highlighted transformations based in learning about themselves as people and as GPs. Nearly all of these were also part of purposeful learning arrangements (eg discussion groups) or deliberately sought by GPs (eg individualised therapeutic support).

I had a one-to-one tutorial with a psychiatrist who asked me to reflect on how I felt about a patient and I realised that was how the patient felt. (GP257)

I was caring for a patient presenting over several occasions with a variety of symptoms including

abdominal pain, anxiety, depression, neck pain. I referred them as non-urgent. I felt very distressed and ruminated about her for long time. I went to a psychologist who explored my reactions to her, my sense of responsibility and over-responsibility. (GP249)

Dispositional development through personal, direct experience

Sixteen of the 48 responses focused on dispositional development described important learning occurring through a personal, direct experience. These were nearly all accounts of interactions with patients that revealed a dimension of patient care through the doctor-patient relationship that was new to the GP.

In a patient who had seen me a number of times, both for themselves and for their child, I had felt a sense that there was something more that I was missing and that would help to explain what was happening to her (why her level of concern). One day she confided in me of a significant health problem as a teenager. It affected her appearance and was largely unexplained by the medical profession. Suddenly I felt I understood her and what she was concerned with, and how it affected her ongoing health-seeking behaviour. (GP243)

I felt terrified of leaving the house...and not having the safety net of a nurse calling/bleeping me if things got worse. I had to learn that you have to assess the patient and their carer, and trust that they will understand and call you back if need be. (GP242)

Eight accounts described learning that patients might have different priorities from clinical diagnosis and treatment. These responses described powerful, if somewhat uncomfortable, learning about the value of listening or 'being there'.

I received a very grateful letter from a patient... All I did was 'being there', listening and being supportive. I felt I was doing nothing therapeutic. [It] opened my eyes to the power of 'being there'. (GP248)

I was asked to go on a house visit to an elderly man who had metastatic bowel cancer and was

in increasing pain...I learned to listen rather than try and 'fix'. [It was] very hard not to press the panic button and insist he went into hospital/hospice for 'sorting out'. [I] realised that he needed to know we would abide by his wishes, but stay involved and support him at home. [It was] more about reassurance and gaining his trust as opposed to cranking up pain meds. I gradually became more comfortable not having a medical fix for everything. (GP246)

Two more responses had unexpected personal experience of being in a different role. This resulted in dramatic change in their perspectives and practice. One described developing more empathy for their own patients after visiting their GP with an embarrassing problem and having to wait a long time to be seen – *'I was so nervous... It was incredibly difficult to talk about'* (GP290). Another described taking their 93 year old 'sharp as a tack' father to a specialist who ignored the father and addressed the GP son (GP284). The impact was so great that the GP now gets students to 'travel incognito' and visit other clinicians for a taste of what it is like for patients.

Discussion

Not surprisingly, responses focused strongly on relations with patients. This fits with other research shows that medical learning is strongly driven by, and embedded in, the work of patient care, and real medical problems are what provoke reflection among medical professionals.⁷⁻⁹ However most of the 'medical problems' identified by GPs were actually *relational* challenges where there was no straightforward application of clinical knowledge.

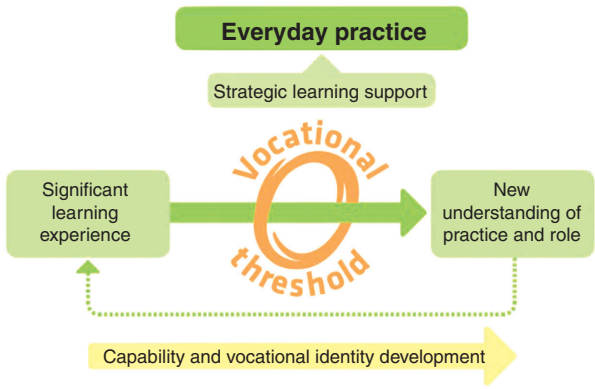
What might initially have been understood as a medical problem – an undifferentiated presentation or seemingly inexplicable patient behaviour – came to be understood in terms beyond the clinical. The accounts highlighted a particularity of general practice: much of the individual work with patients is about *problem-finding* before it can be about *problem-solving*. GPs first discern what the problem actually is from a range of clinical and non-clinical possibilities, and then consider not just *how* to resolve it but *whether* to, in light of the patient's priorities and host of other healthcare system considerations.

In some instances, the process of problem-finding can be an end in itself. Just 'being there' for patients or having a case that provokes reflection and revision of approach highlights the potentially troublesome aspect of a vocational threshold. The new learning can present a profoundly disturbing challenge to existing knowledge, deeply held values, or identity.^{10,11} It can be prompted in ways that are intimately connected to patient care and are therefore meaningful to GPs – patient visits, off the cuff collegial conversations, videoed analysis of consultations, or observation of expert GPs at work.

The 'trouble' comes when GPs confront the idea that their clinical knowledge – accumulated over years, fundamental to the job, and growing all the time - may be an insufficient basis for responding to a patient's needs. As some GPs found, it might be their own sensibilities and sensitivities that are revealed as limiting their ability to meet patient needs. For several others, including those who unexpectedly 'walked in the shoes' of patients, the idea is called into question that a doctor does, or should, always know what to do.

Vocational thresholds (see Figure 1) are based on lived (especially working) experience rather than classroom-based learning. There may be multiple vocational thresholds crossed by practitioners in development at different times, rather than a single conceptual transformation. An experience or accumulation of experiences is not enough on its

Figure 1. The vocational threshold process⁵



own to trigger the crossing of vocational thresholds though. Nor can experiences themselves be planned, as GPs' accounts showed. Experiences are an inherently personal response to an event or situation. Not only are the patient interactions that contributed to moving GPs over a threshold somewhat beyond planning, the experience of them cannot follow a blueprint.

It becomes all the more important to try to ensure that GPs have vantage points over the 'swampy lowlands of professional practice'.¹² Many accounts identified purposeful learning arrangements, informal discussions with colleagues, and opportunities to observe expert GPs as pivotal in providing such a vantage point. It is telling that some accounts described appreciation of seeing a respected mentor's vulnerability. This provided an alternative model of an imperfect yet expert practitioner which was integrated into GPs' ideas of who or what a good GP is.

A particularly fruitful approach is to take the unplanned experiences and integrate them with planned and structured opportunities for shared reflection and feedback. Reflection has long been recognised as an important strategy to promote high-quality, deep learning and improve practice, particularly for work that is complex in its nature,¹³⁻¹⁵ as general practice is. The GPEP promotes reflective practice with its learning groups and GP teacher sessions. In addition there are learning opportunities that occur on an *ad hoc* basis but are structured into daily work – for example, clinics that encourage 'corridor consultations' and collegial advice-seeking or have 'open door' policies where GPs may observe each other's consultations.

GPs' attention can therefore be directed to identifying and using experiences as reflective learning opportunities. GPs' accounts echo international workplace learning research:¹⁶⁻²² the key to maximising the value of experience for learning purposes lies with the arrangements, relations, and set of shared meanings within the workplace. The workplace is not just a physical context. The workplace also includes the relationships that GPs have with co-workers, patients, medical education staff, and others in associated medical roles. So reflective practice is best when

it is 'embedded'¹⁵ – in this case into the workplace in its broadest sense.

The GPs' accounts of relationships as central to their significant learning experiences analysed in this paper suggest these kinds of reflective opportunities are important. It also suggests that *ongoing* opportunities for shared reflection and feedback are important. Even experienced GPs will be faced with relationship challenges with patients and with other medical professionals, particularly given a trend of increasing inter-professional work. There will be therefore be further important experiences and a series of vocational thresholds to be crossed (unlike threshold concepts which are not grounded in lived or working experience and can be learned in a classroom).

There are many possibilities for identity work through ongoing reflection and feedback after medical qualification and vocational registration as a GP. Maintenance of Professional Standards (MOPs) facilitates vocationally registered GPs in achieving their three-yearly recertification with the Medical Council of New Zealand. While GPs can customise their own Professional Development Plan for MOPs, the RNZCGP explicitly discourages an approach that over-relies on lectures and conferences and instead encourages educational initiatives that use real work, take place in the working environment, and involve peer review.²³ This research reinforces these approaches and directions, but also suggests that this is not something just for learner-practitioners but for practitioners at all stages and throughout their development.

This research is limited by a lack of opportunity to further probe the accounts provided by GPs. This has been picked up in the ongoing, wider study⁵ using interviews to explore in more depth the learning experiences identified by participants as significant. That study further develops the idea of vocational thresholds as a window on practitioner development. It may provide useful indications of how structures for reflective practice might be enhanced, particularly at the points where things become 'troublesome', or previously hidden knowledge is revealed, or different understandings might be integrated.

Shifts in perspectives about one's place in the field and sense of self as a practitioner can feed back into the community and 'landscape' of general practice at large. Making sense of experiences through practice is the bedrock of developing a way of being or vocational identity - a negotiated fit between self-perception and occupational perception.²⁴ This seems particularly important if GPs are to flourish in the context of the uncertainty in their work. As Wenger-Trayner and Wenger-Trayner describe it, learning in the practice field is not simply about acquiring knowledge and the skills to do things; it also becoming 'a person who inhabits the landscape.'²⁵

References

1. van der Zwet J, Zwietering PJ, Teunissen PW, et al. Workplace learning from a socio-cultural perspective: creating developmental space during the general practice clerkship. *Adv Health Sci Educ*. 2011;16:359–73. doi:10.1007/s10459-010-9268-x
2. Meyer J, Land R. *Threshold Concepts and Troublesome Knowledge: Linkages to Ways of Thinking and Practising within the Disciplines*. London: Economic and Social Research Council; 2003.
3. Scott J. What to do now? Application of TCs once the curricula have been unstuffed. Conference on Transforming Disciplines: Emergent Learning and Threshold Concepts; 2013 18–19 November; Hamilton. Foote W. *Threshold Theory and Social Work Education*. *Soc Work Educ*. 2013;32(4):424–38.
4. Harrison B, Clayton PH. Reciprocity as a threshold concept for faculty who are learning to teach with service-learning. *J Fac Dev*. 2012;26(3):29–33.
5. Vaughan K, Bonne L, Eyre J. *Knowing Practice: Vocational Thresholds for GPs, Carpenters, and Engineering Technicians*. Wellington: NZCER Press and Ako Aotearoa, 2016. http://www.nzcer.org.nz/system/files/Knowing%20Practice%20Final%2022Jan_DIGITAL_1.pdf
6. Grossman P, Compton C, Igra D, et al. Teaching Practice: A Cross-Professional Perspective. *Teach Coll Rec*. 2009;111(9):2055–100.
7. Chen HC, Sheu L, O'Sullivan P, et al. Legitimate workplace roles and activities for early learners. *Med Edu*. 2014;48:136–45. doi:10.1111/medu.12316
8. van de Wiel MWJ, van den Bossche P, Janssen S, Jossberger H. Exploring deliberate practice in medicine: how do physicians learn in the workplace? *Adv Health Sci Educ*. 2011;16(1):81–95. doi:10.1007/s10459-010-9246-3
9. Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med*. 2004;79(10):S70–81. doi:10.1097/00001888-200410001-00022
10. Segers M, De Greef M. Transformational learning: the perspective of J. Mezirow. In Dochy F, Gijbels D, Segers M, van den Bossche P (Eds.), *Theories of Learning for the Workplace. Building Blocks for Training and Professional Development Programs* (pp. 37–51). Abdingdon: Routledge; 2011.
11. Hodge S. Trainers and transformation: Facilitating the "dark side" of vocational learning. *International Journal of Training Research*. 2010;8:53–62. doi:10.5172/ijtr.8.1.53
12. Schön DA. *The Reflective Practitioner: How Professionals Think in Action*. Aldershot, Arena: Ashgate Publishing, 1991.
13. Brockbank A, McGill I. *Facilitating reflective learning in higher education* (2nd ed.). Maidenhead, England Open University Press; 2007.
14. Gaufberg E, Batalden M. The third thing in medical education. *Clin Teach*. 2007;4:78–81. doi:10.1111/j.1743-498X.2007.00151.x
15. Hargreaves J, Page L. *Reflective Practice*. Cambridge, Polity Press; 2013.
16. Billett S. Work, subjectivity and learning. In: Billett S, Fenwick T, Somerville M, editors. *Work, subjectivity and learning: Understanding learning through working life*. The Netherlands: Springer, 2006:1–18.
17. Fenwick T. Workplace learning: Emerging trends and new perspectives. *New Dir Adult Contin Educ*. 2008;(119):17–26. doi:10.1002/ace.302
18. Fuller A, Unwin L, Felstead A, Jewson N, Kakavelakis K. Creating and using knowledge: An analysis of the differentiated nature of workplace learning environments. *Br Educ Res J*. 2007;33(5):743–59. doi:10.1080/01411920701582397
19. Lee T, Fuller A, Ashton D, Butler P, Felstead A, Unwin L, et al. *Learning as Work: Teaching and Learning Processes in the Contemporary Work Organisation*. Learning as Work Research Paper, No. 2. Leicester: University of Leicester; 2004.
20. Virtanen A, Tynjala P, Stenstrom M-L. Field-Specific Educational Practice as a Source for Students' Vocational Identity Formation. In: Billett S, Harteis C, Etelapelto A, editors. *Emerging Perspectives on Workplace Learning*. Rotterdam: Sense Publishers; 2008.
21. Vaughan K. *Workplace Learning: A Literature Review*. Wellington: NZCER Press; 2008.
22. Vaughan K, Kear A, MacKenzie H. Mate, you should know this! Re-negotiating practice after a critical incident in the assessment of on-job learning. *Vocat Learn*. 2014;7(3):331–44. doi:10.1007/s12186-014-9118-8
23. Royal New Zealand College of General Practitioners. *Continuing Professional Development*. <https://www.rnzcgp.org.nz/continuing-professional-development>; 2015.
24. Klotz VK, Billett S, Winther E. Promoting workforce excellence: formation and relevance of vocational identity for vocational educational training. *Emp Res Vocational Educ Training*. 2014;6(6):1–20.
25. Wenger-Trayner E, Wenger-Trayner B. Learning in a Landscape of Practice: A Framework. In E. Wenter-Trayner, M. Fenton-O'Creevy, S. Hutchinson, C. Kubiak & B. Wenger-Trayner (Eds.), *Learning in Landscapes of Practice. Boundaries, Identity, and Knowledgeability in Practice-Based Learning* (pp. 13–30). Oxon, UK: Routledge; 2015.

ACKNOWLEDGEMENTS / FUNDING

I am grateful for the openness of the GP audience who provided their perspectives for use in this paper and the RNZCGP for the invitation to speak at their Education Convention. I also acknowledge Rose Hipkins and John Pearson for critiquing earlier drafts of this paper, and my colleagues in the wider study, Linda Bonne and Jan Eyre. This paper sits within a wider study which is funded by the New Zealand Council for Educational Research and Ako Aotearoa: Centre for Tertiary Teaching Excellence.

COMPETING INTERESTS

The author has no competing interests.