ISSN
2640-2874

Research Article

In at the deep end: Psychosocial aspects of developing autonomy in histopathology training

Al Finall*

Department of Histopathology, Morriston Hospital, Swansea, UK

***Address for Correspondence:** Dr. Finall AI, Department of Histopathology, Morriston Hospital, Swansea, UK,
Email: alison.finall3@wales.nhs.uk

Submitted: 18 June 2018
Approved: 09 July 2018
Published: 10 July 2018

Copyright: © 2018 Finall AI. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

Introduction

Medical postgraduate trainees are given increasing levels of responsibility during training in the apprenticeship-model of training [1-3]. Responsibility is said to be a key driver of deep learning and understanding [4-7]. Trainees with greater levels of responsibility for decision making have higher levels of motivation to learn compared with trainees who self-assess as having less autonomy [5]. The Royal College of Pathologists (RCPath) indicate that 'graded responsibility' is part of training histopathologists and provided a framework for implementation with increasingly complex specimens suitable for reporting by more senior trainees [8,9].

Devolving diagnostic responsibility by trainers involves a complex series of holistic judgments [2,10]. There are no objective measurement tools that can aid this process either for trainers or trainees [11]. Trainers describe fear of litigation as a barrier to developing responsibility for patient management decisions and histopathology is no exception [12,13]. Four elements have been shown to effect the decision to devolve autonomy to perform discrete practical procedures; attributes of the trainee, the nature of the task, the supervisors and characteristics of the working environment [14]. These factors were also found in a similar study of anaesthetic trainees [11]. Dijksterhuis et al. found that depth of acquaintance with the trainee was most frequently cited as the variable affecting decisions to delegate work [14]. Ten Cate showed that trainee honesty and reliability were important factors in deciding whether they were ready to take on responsibility for entrustable professional activities (EPA's) [2,10]. Knowing how to deal with mistakes of oneself and others, having a sense of responsibility and being able to self evaluate and reflect were also highlighted as desirable characteristics of trainees [10].

Published research regarding graded responsibility in histopathology is limited. A recent qualitative study in the UK described perceived learning needs of histopathology trainees with respect to training content and structure [15]. These perceived requirements for safe and effective graded responsibility include having a variable and sufficiently large case load in early years of training, the ability to write clear and concise reports, being able to recognise normal histology and being given regular responsibility for presenting at multi-disciplinary team (MDT) meetings. Trainees also valued detailed discussion of microscopic morphology at the double-headed microscope with their senior colleagues as a necessary component of training to develop graded responsibility [15].

Two questionnaire based studies in the US both concluded that trainee exposure to responsibility in histopathology training was limited despite being perceived as

How to cite this article: Finall AI. In at the deep end: Psychosocial aspects of developing autonomy in histopathology training. Arch Pathol Clin Res. 2018; 2: 013-019. https://dx.doi.org/10.29328/journal.apcr.1001007

making a positive contribution to developing diagnostic confidence [13,16]. This paper reports findings of a qualitative study of perceived learning needs of trainee histopathologists for graded responsibility with particular reference to non-technical skills around professionalism and developing resilience.

Methods

Grounded theory informs the qualitative study design of this research. Nine histopathology trainees took part in a focus group from a possible cohort of eleven. Participants were asked 'What do you perceive are the learning needs of histopathology trainees to develop skills for safe and confident independent reporting in surgical histopathology?' Five interviews with consultant histopathologists were conducted after the focus group. The consultants were relatively new to their posts having been practicing in their roles for 2 months to 5 years. Iterative data collection methods were used to build on the emerging data themes. Consultant interviews were performed in addition to the trainee focus group in order to highlight any possible unperceived learning needs the trainees may have [17].

Data was recorded and transcribed into an anonymous format by the author. Data were analysed using an open coding framework. The author has first-hand understanding of the social, cultural and professional contexts of the subject and its participants as a practicing consultant histopathologist who trained in the department from where the cohort of study participants originated. Data relating to professionalism and resilience are presented here. Participants gave informed consent to take part in the study and were allowed to withdraw at any time. This project was granted ethical approval by the Research Ethics Committee for the School of Postgraduate Medical and Dental Education, Cardiff University.

Results

Learning to manage ones time was a need that was identified by both trainees and consultants. Participants were concerned that graded responsibility would slow a trainee down; they worried about spending a greater amount of time looking at histological slides of a perceived simple specimen such as an inflamed appendix. However, an ST3 in the focus group noted that with accumulating experience their abilities in time management and prioritisation improved:

"...It's just something that clicked inside of me and my time management became so much better when I'd had a couple of years experience."

Overall, most consultants believed that it was possible to perform graded responsibility in a safe way as long as trainees consulted a colleague about anything they were unsure of and consultants appeared to trust trainee to do this:

"*...most trainees have common sense, if they see something unusual they will show someone, not report it themselves.*"

A consultant histopathologist said:

"*...As a trainee you do not show [cases] around to people because you know you are going to show it to .... a consultant [but] you have to realise your own limitations and if you were to start reporting things on your own you would realise your own limitations...*"

It is acknowledged by some trainees that knowing when to show cases to someone with more experience is a skill in itself and requires a degree of self awareness that can take time, maturity and experience to develop:

"....a scrappy gastric biopsy with something in it that you can't... ..that you're not sure whether it is something or isn't and then you...those are the ones... it's just knowing when to show someone. You need a few years for that."

Participants stated that diagnostic confidence in surgical histopathology reporting improves with time. Despite comments that graded responsibility is best commenced following the part 2 exam, someone did offer a different view with reference to building confidence in this area:

"....if independent reporting is something that is started from the very beginning of histopathology training that confidence can be built up…built up…and built up to a stage actually maybe even earlier than I felt confident."

Some felt that passing part 2 of the Royal College of Pathology examinations had a positive effect on confidence:

"Having the [part 2 FRCPath] exam gives you a certain level of confidence and before having the exam you almost felt as if there was something missing.... "

There were repeated expressions of fear, stress and anxiety from both consultants and trainees with respect to the responsibility of independent reporting by trainees. Fear of making mistakes was frequently cited:

"I've been thinking "Oh, (nervous laughter) I've got that wrong, but what about that....? It's just these things that are just about the right level that you sort of need that transition period where you are starting to feel your feet and know what you're doing properly, ..."

Trainees were concerned about the prospect of litigation and that the probability of this would increase with graded responsibility:

....if you look at it from a legal point of view.....if you make a mistake you are compared to your peers, aren't you? And if there is going to be any suing done and if the Trust is going to pay out money or what not.... would the Trust be happy if, say, I reported a benign uterus and I missed, say,... CIN 3 and ... micro-invasion."

Anxiety was expressed by those who had already taken on independent reporting:

"It is that transition.... there is a sudden sort of "gulp" no else is going to look at this...the fear of getting it wrong. It's such a weird experience as I say, because it is comfortable in the third year you take your exam in the fourth year and to a certain extent that is quite a bubble existence... and the bubble pops just as soon as you ... pass [FRCPath part 2].

The feelings associated with the acquisition of independence as a consultant were summarised as follows:

"...First of all the responsibility, it is ..... bordering on overwhelming, I think, ... There is no one else there to do it for you. It's all down to me. The responsibility is there and it's.... you feel the gravity of it. For me it has been a steep learning curve."

This passage illustrates that the abrupt sensation of an increase in responsibility that is experienced when becoming a consultant.

A consultant expanded on this point by describing how an organisational culture of openness and being surrounded by approachable colleagues can go a long way to achieving this aim:

"If you don't know something and you don't show somebody because you don't think you can or you're scared to ...that's dangerous.... so to be in an environment where you can do that is crucial I think."

Discussion

Being able manage time effectively is a new learning need that is not mentioned by literature concerning autonomy in other medical training schemes. This may be something unique to histopathology with working patterns that are distinct from other

medical disciplines. Studies have shown that a surgical histopathology case reported by a consultant can take a mean of between 5 and 10 minutes times with approximately 2.5 minutes per slide with variation between cases due to complexity and different number of slides per case [18]. No research data has been reported to our knowledge that compares trainee with consultant reporting time during a time of transition to increasing responsibility. The theme of time management is intimately linked with the psychosocial need to feel confident about the content of the report issued and with the need to avoid the fear associated with missing a clinically important diagnosis.

There is an apparent perceived conflict between aspects of training in histopathology are deemed to be useful learning experiences and those processes that are necessary for providing a service to patients and clinicians and this is a phenomenon documented across medicine [19,20]. Although not stated explicitly, there was a concern that introduction of graded responsibility into training was a way of getting more direct service provision out of trainees and that this would likely revolve around simple specimens of little educational value.

Ensuring patient safety is clearly an important part of all postgraduate medical training schemes. Guaranteeing safety is often cited as a reason for not devolving responsibility.[21] Some authors assert that the likelihood of a trainee making an error is very low [22,23]. However, the reality may be very different. Error rates in pathology are estimated at between 1 and 43% of surgical specimens [24]. A UK study found that 58% of consultant respondents self-reported making an error and 42% of those were thought to have had a clinical impact [25]. Participants in this study only referred to "personal cognitive" errors which can be reduced by having colleagues on hand for a second opinion [26]. None of the participants in this study made reference to the potential for errors occurring by chance, biopsy sampling or due to laboratory systems failure.

The experience of Dutch anaesthetic and obstetrics and gynaecology trainees is that ultimate responsibility for patients' outcomes lies with the consultant or supervisor [10,11]. This was also expressed in our our study. However, trainee histopathologists have joint responsibility for the content of reports generated under supervision of their trainers and litigation would be defended by health boards providing medical indemnity for their employees. Trainees should be encouraged to audit their own performance and take responsibility for their input into histopathological reports.

When devolving responsibility to a trainee, studies have shown that supervisors put considerable weight on a trainees' self-assessment of whether they were competent to perform a particular task before granting them independence to do it without supervision [14]. This may be ill-judged if one considers how poor performers are apt to over-estimate their abilities [11,27]. Furthermore, trainees have been shown to put on an overly confident presentation of themselves to give an impression of credibility when they may feel unsure of themselves [28].

There is evidence that more responsibility is granted to trainees when on-call out of hours [11,14,21,29] and whilst this is also true of other pathological specialties such as microbiology [30]. Surgical histopathology trainees are not given on-call duties in most training centres [30]. Trainees need to develop self-awareness and know when their limitations have been reached as this will prompt feedback seeking behavior [31,32]. Building in reflective practice into histopathological training could be a solution to address this learning need and help trainees explore their own beliefs and emotions about graded responsibility. It may help individuals to discover what it is that creates obstructions to independent practice, be they tangible or imagined [33-35]. Reflective practice may generate an enhanced sense of self-awareness and help trainees to be aware of their own limitations and characterise them more fully [33-36]. Diagnostic limitations are likely to be a very individual characteristic based on individual experience. As such, knowing ones limitations is a learning need that cannot be addressed and taught by another individual.

Developing experience and diagnostic confidence by trainees appear to be closely linked. These characteristics are thought to allow for smoother transition to independence [16]. This may be further enhanced by increasing the amount of reflective practice by trainees. Many authors state that reflective techniques can lead to improved confidence in the workplace [33-35].

Interestingly, it may be that enhanced self-esteem and confidence may *result* from introduction of graded responsibility. Graded responsibility may induce a positive feedback cycle of responsibility leading to increased morale leading to greater motivation and then more responsibility seeking behaviour. Editorial opinion in the literature supports this idea [13,23]. Also, there is evidence to substantiate these claims in other medical disciplines. Perceived self-esteem has been shown to increase with enhanced levels of responsibility in general practice trainees [37].

To enable graded responsibility during training one needs to mitigate against high levels of anxiety as this can lead to an inhibition of learning known as “destructive friction” [38]. Having said this, many authors believe a little bit of stress is necessary for deep and sustained learning and that this applies to histopathology trainees [13]. This concept is allied to Vygotsky’s educational theory of the “zone of proximal development” where deep learning is said to occur when people place themselves just beyond their competency level and, under guidance from a more experience facilitator, develop new skills and knowledge [8].

We see from our data that some perceive responsibility in histopathology reporting as being onerous particularly when it comes as an abrupt transition following training. So, as with the need to increase confidence, coping with stress may also be made easier as a *result* of graded responsibility as well as being a *requirement* before engaging with it. Trainees need to be supported to cope with uncertainty and worries about making mistakes. Peer support groups may offer a solution to this and are, perhaps, an organisational requirement for histopathology doctors in-training. A peer supervision quartet, for example, is a way for small groups of trainees to give helpful feedback to one another on a semi- formal basis to tackle personal and managerial issues that can arise during training [39].

An open organisational culture has been shown in the literature to be a central article required for effective learning to take place [40,41]. Kennedy et al state that supervisors who are approachable and available to trainees tend to promote an open organization culture in which trainees feel able to ask for assistance without fear of ridicule [32].

Conclusion

Trainees provided valuable insight into the lived reality of developing autonomy in histopathological reporting. It is clear there are anxieties that need to be respected and addressed. Ensuring that trainees are supported within a training environment responsive to training needs may ease the psychological burden. Different levels of guidance and support will be necessary to reflect trainees’ variable rate of progress along the path to expertise[42] and identifying these differences is a key challenge for supervisors. Providing time for case reviews with reflection is likely to aid development of skills and resilience to tackle increasing levels of responsibility and forms a central aspect of medical professionalism.

Competing interests

A Finall received a career development fund from the Association of Clinical Pathologists (ACP) in support of a Masters degree in Medical Education.

References

1. Kennedy TJ, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: a tradition worth defending? Acad Med. 2005; 80: S106- S111. **Ref.:** https://tinyurl.com/y9unbo6c

2. Olle ten C. Trust, competence and the supervisors' role in postgraduate training. BMJ. 2006; 333: 748-751. **Ref.:** https://tinyurl.com/y8udcwwk

3. Williamson HA, Glenn JK, Spencer DC, Reid JC. The development of clinical independence: resident-attending physician interactions in an ambulatory care setting. J Fam Pract. 1988; 26: 60-64. **Ref.:** https://tinyurl.com/yd6yg7zm

4. Boud D, Keogh R, Walker D. Reflection: turning experience into learning. London. 1985.

5. Cantillon P, MacDermott M. Does responsibility drive learning? Lessons from intern rotations in general practice. Med Teach. 2008; 30: 254-259. **Ref.:** https://tinyurl.com/ybftmc4m

6. Del Rio P, Alvarez A. Inside and outside the zone of proximal development: an Eco functional reading of Vygotsky. In: Daniels H, Cole M, Wertsch JV. The Cambridge Companion to Vygotsky. Cambridge: Cambridge University Press. 2007; 276-306.

7. Vygotsky LS. Mind in society. The development of higher psychological processes. London: Harvard University Press. 1978.

8. Joint Committee on Pathology Training. Curriculum for speciality training in histopathology. London: RCPath, 2010.

9. Joint Committee on Pathology Training. A competency based framework for graded responsibility for specialist registrar and specialty registrars in histopathology and cytopathology. 2009.

10. Ten Cate O, Chen HC, Hoff RG, Peters H, Bok H, et al. Curriculum development for the workplace using entrustable professional activities (EPAs): AMEE Guide No. 99. Med Teach. 2015; 37: 983-1002. **Ref.:** https://tinyurl.com/y6wybo72

11. Sterkenburg A, Barach P, Kalkman C, Gielen M, ten Cate O. When do supervising physicians decide to entrust residents with unsupervised tasks? Acad Med. 2010; 85: 1408-1417. **Ref.:** https://tinyurl.com/yd9ooq8b

12. Davey DD, Talkington S, Kannon V, Masood S, Davila R, et al. Cytopathology and the pathology resident: a survey of residency program directors. Arch Path Lab Med. 1996; 120: 101-114. **Ref.:** https://tinyurl.com/y7f23vru

13. Allen TC. Graduated responsibility for pathology residents: no time for half measures. Arch Pathol Lab Med. 2013; 137: 457-461. **Ref.:** https://tinyurl.com/y94e6xd5

14. Dijksterhuis MG, Voorhuis M, Teunissen PW, Schuwirth LW, ten Cate OT, et al. Assessment of competence and progressive independence in postgraduate clinical training. Med Educ. 2009; 43: 1156-1165. **Ref.:** https://tinyurl.com/ycklkozw

15. Finall A, Allery L. Ready, Steady Go! What do histopathology trainees think they need from training to enable them to develop autonomy in surgical pathology reporting? J Clin Pathol. 2016; 69: 42-46. **Ref.:** https://tinyurl.com/yafztynj

16. Pascal RR. Graded responsibility of residents in anatomic pathology: a survey and commentary. Am J Clin Pathol. 1993; 100: S41- S43. **Ref.:** https://tinyurl.com/y9nppv8q

17. Davis P, Mann P, Cave A, McBennett S, Cook D. Use of focus groups to assess the educational needs of the primary care physician for the management of asthma. Med Educ. 2000; 34: 987-993. **Ref.:** https://tinyurl.com/yd6n24ap

18. Randell R, Ruddle RA, Quirke P, Thomas RG, Treanor D. Working at the microscope. Analysis of the activities involved in diagnostic pathology. Histopathology. 2012; 60: 504-510. **Ref.:** https://tinyurl.com/ya3z3beo

19. Cross V, Hicks C, Parle J, Field S. Perceptions of the learning environment in higher specialist training of doctors. Implications for recruitment and retention. Med Educ. 2006; 40: 121-128. **Ref.:** https://tinyurl.com/yb6r9jzp

20. McKee M, Preist P, Ginzler M, Black N. Which tasks performed by pre-registration house officers out of hours are appropriate? Med Edu. 2012; 26: 51-57. **Ref.:** https://tinyurl.com/ybw8cmdh

21. Halpern S, Detsky AS. Graded autonomy in Medical Education- Managing things that go bump in the night. N Eng J Med. 2014; 370: 1086-1089. **Ref.:** https://tinyurl.com/yasugqqb

22. Babbott S. Commentary: Watching closely at a distance: Key tensions in supervising resident physicians. Acad Med. 2010; 85: 1399-1400. **Ref.:** https://tinyurl.com/y8bu9rff

23. Evans, C. E. Nothing Becomes Real Until it is Experienced. RC Path Bulletin. 2004; 126: 18-20.

24. Raab SS, Grzybicki DM, Janosky JE, Zarbo RJ, Meier FA, et al. Clinical Impact and Frequency of Anatomic Pathology Errors in Cancer Diagnoses. Cancer. 2005; 104: 2205-2230. **Ref.:** https://tinyurl.com/y9uopx8j

25. Furness PN, Lauder I. A questionnaire-based survey of errors in diagnostic histopathology throughout the United Kingdom. J Clin Pathol. 1997; 50: 457-460. **Ref.:** https://tinyurl.com/y7n4tznb

26. Graber M, Gordon R, Franklin N. Reducing diagnostic errors in medicine: What's the goal? Acad Med. 2002; 77: 281-991. **Ref.:** https://tinyurl.com/ya2eg66t

27. Davis DA, Mazmanian PE, Fordis M, Van Harrison R, Thorpe KE, et al. Accuracy of physician self-assessment compared with observed measures of competence: A systematic review. JAMA. 2006; 296: 1094-1102. **Ref.:** https://tinyurl.com/y7wjq5h9

28. Lingard L, Garwood K, Schryer CF, Spafford MM. A certain art of uncertainty: case presentation and the development of professional identity. Soc Sci Med. 2003; 56: 603-616. **Ref.:** https://tinyurl.com/yc2nomt3

29. Bush RW. Supervision in Medical Education: Logical Fallacies and Clear Choices. J Grad Med Educ. 2010; 2: 141-143. **Ref.:** https://tinyurl.com/y7cc7lbd

30. Bailey DM, Gill MJ, Mutton K, Shine B. Future-proofing the specialty training curricula: Compliance with PMETB "Standards for Curricular and Assessment Systems". RC Path Bullletin. 2010; 150: 106-110.

31. Crommelinck M, Anseel F. Understanding and encouraging feedback-seeking behaviour: a literature review. Med Educ. 2013; 47: 232-241. **Ref.:** https://tinyurl.com/y93wma52

32. Kennedy TJT, Regehr G, Baker GR, Lingard LA. Progressive independence in clinical training: A tradition worth defending? Acad Med. 2005; 80: S106-S111. **Ref.:** https://tinyurl.com/y9unbo6c

33. Boud D. Creating the space for reflection at work. In Productive Reflection at Work. Boud D. Cressey P. Docherty P. (Eds) 2006. Abingdon, Oxon: Routledge.

34. Davies S. Embracing reflective practice. Educ Prim Care. 2012; 23: 9-12. **Ref.:** https://tinyurl.com/ybateffl

35. Moon J. Reflection in Learning and Professional Development. 1999 London: Kogan Page Ltd.

36. Schon DA. The Reflective Practitioner: How professionals think in action. 1983 London: Temple Smith.

37. Cantillon P, MacDermott M. Does responsibility drive learning? Lessons from intern rotations in general practice. Med Teach. 2008; 30: 254-259. **Ref.:** https://tinyurl.com/ybftmc4m

38. Vermont JD, Verloop N. Congruence and friction between learning and teaching. Learn Instruct. 1999; 9: 257-280.

39. Launer J. Supervision quartets. Postgrad Med J. 2012; 88: 185-186. **Ref.:** https://tinyurl.com/y89x8blq

40. Cooper A. Supervision in primary care: Support or persecution? in: Burton J. and Launer J. (Eds) Supervision and Support in Primary Care. 2003 Oxon: Radcliffe Medical Press.

41. Cooper N, Melville CR. Putting a curriculum into practice. In: Cooper, N and Forrest, K. (Eds) Essential guide to educational supervision in postgraduate medical education. 2009 Chichester: Blackwell Publishing.

42. Li ST, Tancredi DJ, Scwartz A, Guillot AP, Burke AE, et al. Competent for Unsupervised Practice: Use of Pediatric Residency Training Milestones to Assess Readiness. Acad Med. 2017; 92: 385-393. **Ref.:** https://tinyurl.com/ybs46art