

Authentic early experience in Medical Education: a socio-cultural analysis identifying important variables in learning interactions within workplaces

Sarah Yardley · Caragh Brosnan · Jane Richardson · Richard Hays

Received: 20 December 2011 / Accepted: 2 July 2012 / Published online: 5 December 2012
© Springer Science+Business Media Dordrecht 2012

Abstract This paper addresses the question ‘what are the variables influencing social interactions and learning during Authentic Early Experience (AEE)?’ AEE is a complex educational intervention for new medical students. Following critique of the existing literature, multiple qualitative methods were used to create a study framework conceptually orientated to a socio-cultural perspective. Study participants were recruited from three groups at one UK medical school: students, workplace supervisors, and medical school faculty. A series of intersecting spectra identified in the data describe dyadic variables that make explicit the parameters within which social interactions are conducted in this setting. Four of the spectra describe social processes related to being in workplaces and developing the ability to manage interactions during authentic early experiences. These are: (1) legitimacy expressed through invited participation or exclusion; (2) finding a role—a spectrum from student identity to doctor mindset; (3) personal perspectives and discomfort in transition from lay to medical; and, (4) taking responsibility for ‘risk’—moving from aversion to management through graded progression of responsibility. Four further spectra describe educational consequences of social interactions. These spectra identify how the reality of learning is shaped through social interactions and are (1) generic-specific objectives, (2) parallel-integrated-learning, (3) context specific-transferable learning and (4) performing or simulating-reality. Attention to these variables is important if educators are to maximise constructive learning from AEE. Application of each of the spectra could assist workplace supervisors to maximise the positive learning potential of specific workplaces.

S. Yardley (✉) · J. Richardson
Research Institute of Primary Care and Health Sciences, Keele University,
Keele, Staffordshire ST5 5BG, UK
e-mail: s.yardley@keele.ac.uk

C. Brosnan
Department of Health Sociology, School of Humanities and Social Science,
University of Newcastle, Newcastle, Australia

R. Hays
Faculty of Health Sciences and Medicine, Bond University, Gold Coast, Australia

Keywords Authentic early experience · Education undergraduate medical · Qualitative · Socio-cultural · Workplace

Introduction

Authentic Early Experience (AEE) has been defined as new medical students undertaking “human contact in a social or clinical context that enhances learning of health, illness or disease, and the role of the health professional” (Littlewood et al. 2005). ‘Early’ refers to the first half of undergraduate curricula (or internationally equivalent time) when students are mainly based within medical school institutions. ‘Authenticity’ denotes ‘real life’ contexts in which genuine workplace settings and functions provide the basis of student interaction with people engaging in health and social care.

Reasons for introducing AEE into medical curricula are diverse, privileging either learner or societal needs. Intended purposes range from directing career ambitions towards specialties of low recruitment and providing student-led healthcare to under-resourced locations, to seeking to increase student understanding of patient perspectives and development of professional attitudes (Littlewood et al. 2005; Hopayian et al. 2007; Yardley et al. 2010). Despite these varied intentions there are commonalities in the incorporation of AEE into curricula. AEE has typically been conceptualised as a means to reinforce medical school institutional teaching, encourage student professional development, with a focus on so-called ‘soft’ outcomes (such as communication skills or professionalism), and prepare students for the transition into clinical years (Hopayian et al. 2007; Howe et al. 2007; Dornan et al. 2006; Dornan and Bundy 2004).

The widespread adoption of AEE by medical schools cannot be credited to theoretical bases alone. Policy imperatives have played a significant role in the implementation of AEE, for example, in the UK it has become a key part of the General Medical Council’s requirements for undergraduate education (General Medical Council 2009). The pedagogical support required for learning from experience is challenging to meet in practice, not least with respect to the requirement that students are active participants in the learning environment (Lave and Wenger 1991; Dornan et al. 2007). Most conceptualisations of AEE include few if any opportunities for graded increases in responsibility for students (Hopayian et al. 2007; Howe et al. 2007; Dornan et al. 2006). Within medicine there is difficulty in achieving balance between ensuring patient safety and giving students meaningful patient-related tasks.

Workplace-based education interventions such as AEE are subject to social interactions. This paper contributes to development of a socio-cultural understanding of AEE by answering the question ‘What are the variables influencing social interactions and learning during AEE?’ It is based on a qualitative study which integrated socio-cultural theoretical perspectives with empirical data of what actually happens in practice. This methodology was used to address an overarching concern regarding how and why AEE results in educational consequences for students. We address the third of Eraut’s three proposed questions to be asked of any form of workplace learning, that is, ‘What factors affect the level and directions of learning effort?’ (Eraut 2004) in order to understand ‘how’ and ‘why’ we need to identify social or contextual factors that might be associated with variation in outcomes (Craig et al. 2008). This includes the identification of varied social interactions taking place between students and other people, to understand how these interactions influence learning. Prior to this study very little was understood about how or

why these experiences work, or indeed what is meant by ‘work’ in this context. Consequential meaning and knowledge constructed by the students in this study [i.e. ‘What is being learnt?’ (Eraut 2004) and why] is discussed elsewhere (Yardley et al. in press; Yardley 2011).

Socio-cultural theories applied to Medical Education

Socio-cultural theories of learning such as Situated Learning (Lave and Wenger 1991) and Activity Theory (Engeström 2001) have attracted interest in the field of Medical Education. Socio-cultural theories focus on how experiences and resultant learning are situated within social contexts. Situated Learning considers how novices can be offered legitimate peripheral participation in order to learn the activities of the context (workplace). Activity Theory takes the context as its unit of analysis, theorising that individuals and interactions within it achieve learning as a shared object or goal.

In the theoretical literature it is recognised that these theories describe an ideal, providing an aspirational explanation of what should happen to potentiate desirable learning (Wenger 1998). Lave and Wenger take care to emphasise that resistance on the part of existing practitioners to the legitimacy and inclusion of new learners can subvert the process. This can be communicated in a variety of ways, of which language is often the mediator (Lave and Wenger 1991). Similarly, with respect to Activity Theory, Engeström addresses the problem of interacting activity systems by suggesting overlap between the object (desired outcome or consequence) of each—i.e. common purpose of more than one system is needed to produce a new object (e.g. applied educational outcomes as objects of hospital and university systems). Applied to AEE, the first objects of each individual system might be, for example, student development within the medical school and service delivery in the workplace. Objects arising from system interactions could then be construed as student development in the workplace and students’ roles in service delivery. It is at this point that a gap can be identified if ideal theory departs from practice. There should be the unified goal of students developing functional and transferable knowledge in context which also serves a purpose in the workplace. In practice, this goal has proved elusive (Norman 2009). Something within the system, agents, or interactions, is not functioning according to the idealised model. To fully understand the consequences of a social educational intervention such as AEE requires attention to be paid to the ‘surprises’—that is unintended or unexpected learning which can arise.

Methods

Prospective research approval was received from the University Peer Review Panel, School of Medicine Ethics Committee, and a National Health Service Local Research Ethics Committee.

Study setting

The medical school in which this study was conducted was established in 2003. Student participants were all enrolled on a 5 year undergraduate course (even if they had a previous degree). Data were collected from January 2009 until March 2010, while the school was in the process of implementing a new curriculum which incorporated AEE from Year One. This process created an opportunity to investigate the role of AEE. Within this curriculum

AEE was a part of an ‘experiential learning’ pedagogical theme which also incorporated activities within the medical school. These activities included communication skills training which students were expected to put into practice during AEE. The AEE elements of the curriculum are described in Table 1. AEE was described by the school as ‘placements’ that encouraged consideration of community and social dimensions of illness and health. Students were required to intermittently submit reflective summaries based on AEE within a portfolio which was graded for presentation of work, depth of reflection and self-awareness. Learning outcomes for individual episodes of AEE were generic rather than context specific and related to the title of each experience (shown in Table 1). These were given to both the students and placement providers. Particular workplaces (covering health, social care and voluntary community services) were allocated to students arbitrarily producing wide variations. Students were mainly expected to be observers of authentic practice, albeit with some supervised interaction with patients and basic procedures. They were advised to keep records of their experiences for developing portfolios (of professional development) as well as completing written reflective assignments for submission. There was no other formal feedback, nor routine debriefing, within the medical school at the time of the study.

Data generation

Data were generated through the use of multiple participant perspectives in a qualitative research design which drew on multiple methods of analysis (Mishler 1986; Corbin and Strauss 2008). First- and second-year students ($n = 23$), workplace supervisors ($n = 20$) and medical school faculty ($n = 13$) were recruited following theoretical and purposive sampling to participate in individual semi-structured interviews. After completing interviews with participants from these three groups further data was generated with students

Table 1 Types of AEE in the study context

Year	Type of authentic early experience
One (each type of placement allocated once per student)	<ul style="list-style-type: none"> Observation and interview experience with a health professional Interviewing a patient with a chronic illness Interviewing an elderly person and/or their carer about aging Discussing health risks related to lifestyle Discussing modifying behaviour relating to lifestyle Conducting a mental health interview
Two (each student was allocated a mixture of unit specific, procedural and community placements (six plus per student dependent on logistics) in addition to the student selected study placement which typically included eight half days in the workplace)	<ul style="list-style-type: none"> Unit specific placements of the ‘traditional’ type occurring on the hospital wards, in outpatients, and other hospital departments Procedural based placements: venepuncture, post mortem, coroners’ court (simulated case but authentic context and interaction with coroner) Community based placements with allied health professionals and nurses Student-selected study placement in voluntary organisations

through the use of four discussion groups (Langdrige and Hagger-Johnson 2009, Mitchell 1999) ($n = 26$ in total: year one previous participants = 8, new participants = 3, year two previous participants = 6, new participants = 9) to discuss the emerging findings of all interviews (Morgan 1997). The use of previously interviewed and new student participants in the discussion groups was a theoretical sampling to develop ideas longitudinally and with a broader student group.

Purposive sampling refers to the identification of participants who are likely to have useful information for the research question. Theoretical sampling refers to selection of additional participants to develop ideas and emerging interpretations. Students who were undertaking authentic early experiences at the time of the research were all able to contribute useful information. Therefore, volunteer students from the first 2 years were recruited to participate. At the start of the research study students had undertaken between two and four placements in their current year of study, and the second year students had completed up to six placements in their first year of study. Workplace supervisors and medical school faculty responsible for AEE were interviewed in addition to students in order to identify constructs of AEE and dynamic interactions between the groups. As the medical school used approximately 170 sites for authentic early experience a theoretical sampling strategy was developed for workplace supervisors. This strategy covered the distinct sub-groups of medical (hospital and community) and non-medical (social and voluntary). Supervisors with greater experience were selected on the basis that they might provide more information for the study. Of the medical school faculty only those with direct experience of design and implementation of AEE were invited to participate (purposive sampling). All those identified agreed to participate.

Interviews included discussion of the expectations, processes and consequences of AEE. The interview schedule was derived following identification of questions that could not be fully answered in a systematic review of previous empirical or theoretical literature. It comprised a sequence of topic areas including experiences in action, and areas of frustration in Medical Education such as the learning of content knowledge, achieving functional knowledge, and transfer of knowledge (Kvale and Brinkman 2009). Topics for further exploration in the discussion included student role, gaining knowledge, debriefing, place in the curriculum, challenges, expectations and interactions. This provided a mechanism allowing students to comment on the conceptualisations of AEE constructed by workplace supervisors and faculty members (Frey and Fontana 1991). Interested readers can request a copy of the schedules from the corresponding author. Interviews lasted between 20 and 90 min and discussion groups between 60 and 90 min. All interviews and discussion groups were conducted in private rooms at the participant's workplace—the medical school for students and faculty, and individual places of work for workplace supervisors (except for one who chose to be interviewed at the medical school). All data were audio-recorded, and transcribed verbatim.

The first author conducted all interviews and discussion groups. Her own medical undergraduate training took place between 1995 and 2000. She was not known to the participants of this research prior to undertaking the study and deliberately did not undertake any clinical or teaching activities locally alongside this research. Whilst it was useful to 'know' (from her own background) what the students were talking about medically (and in terms of detecting items of significance), as a researcher she made conscious efforts not to accept potentially common assumptions at face value. Where the role as a researcher fell between insider to outsider is difficult to delineate. She was not a medical student (although had been one), nor a member of faculty at the time of conducting the work (although had been elsewhere), nor a placement provider (although also had been

elsewhere). Therefore, she was an outsider in that she had only been in the study location as a researcher, but with insider knowledge of the participants' positions. The use of multiple participant groups to provide different perspectives ensured that an interpretation was not solely premised on limited individual or group perceptions.

Data analysis

Thematic analysis was used to achieve data organisation through identification and mapping of the breadth and depth of themes present within the data (Miles and Huberman 1994). The practical methods also drew on aspects of three qualitative methodological approaches, (all consistent with a socio-cultural constructionist perspective), to identify underlying social processes, what the students took away from authentic early experiences, and their consequential meaning-making. These are discourse analysis (focusing on the use of language and metaphor to convey meaning) comparable to that of Monrouxe and Rees e.g. (Monrouxe 2009; Monrouxe et al. 2009), narrative analysis (with attention to both structure and content), and interpretative phenomenological analysis (asking of the data what meanings are present for participants and what is the significance of these meanings for them, plus what does it mean that these meanings have been identified?) (Smith 1996). Each of these approaches offered a different facet to understanding the richness of language as a tool to access meaning-making. Using mixed qualitative methods alongside multiple theoretical perspectives allows deeper interpretation of socio-cultural consequences from AEE. If one is attempting to gain understanding of complex interactions between both multiple agents and multiple structures then using different but complementary methods to interpret data is a logical step. Opting for multiple approaches to data analysis, as outlined below, increases the trustworthiness of findings by providing inbuilt checks on interpretations through multiple perspectives, in addition to our use of data from different participant groups at sequential time points, and checking interpretations with student participants.

From in vivo coding in the initial thematic analysis a framework was built, into which further data was incorporated, adding new codes as necessary. This process identified significant sections of narrative in the student data and differences in the language used between the three participant groups. All authors were involved in generating and refining themes. Data from the discussion groups was integrated into the interview analyses using the same methods but with a particular focus on refining and elaborating on expectations, processes, and consequences of AEE. Discussion groups provided opportunities to reflect on provocative quotations (identified as requiring further exploration) from the preceding interviews. Students could react to quotations from their peers, medical school faculty and workplace supervisors. Interpretations were tested and refined using the data generated within a wider student group during the discussion group sessions. This including identifying resonance of each spectra and its content with the student participants. During the discussion groups it was also possible to observe student interactions with each other. This informed the interpretative analysis as areas of consensus or dissonance in the content of each spectrum could be identified. The discussion groups were only conducted with students as the study was centred on the meaning-making and knowledge construction which they generated from authentic early experiences. The discussions were recorded and analysed using the same methods as the interviews. Readers interested in a more detailed explanation of these practical methods are referred to Yardley (2011). The corresponding author is also willing to discuss specific questions.

Results

Multiple social processes were embedded in and influenced student interactions during AEE. The two sets of inter-acting spectra presented in this paper should be considered as an interpretation of the data informed by socio-cultural theories of learning from experience. A spectrum can be used to classify something in terms of its (variable) position between two poles. How an individual student or a group of students experience specific exposures to AEE can be classified across this range of spectra. Different experiences can be classified across a range of spectra with each individual spectrum describing a particular social element from one extreme to the other. For example, the themes of participation and exclusion, identified in the analysis, are variables which can be conceived as extreme points on a spectrum of legitimacy. This is one of several socially constructed processes influencing the meaning-making and consequences of AEE.

Within these results preference has been given to the student perspective as they are the intended central beneficiaries of AEE. The data generated from the other participant groups provided corroborative and contextual information to allow more detailed interpretation of the student perspective with respect to social interactions. An illustrative example detailing this, drawing on faculty and workplace supervisor data, is included in the first workplace spectra.

Overall two interacting categories of spectra were identified: workplace spectra describe cultural/community influences on interactions within experiences; educational spectra describe how the reality of learning is shaped through social influences on knowledge construction. Exemplar excerpts from interviews and discussion groups are used to illustrate each spectrum (see Figs. 1, 2).¹

Workplace spectra

Four spectra were identified which related to being in workplaces and developing the ability to manage interactions during authentic early experiences. These are: (1) legitimacy expressed through invited participation or exclusion; (2) finding a role—a spectrum from student identity to doctor mindset; (3) personal perspectives and discomfort in transition from lay to medical; and, (4) taking responsibility for ‘risk’—moving from aversion to management through graded progression of responsibility.

Workplace spectrum one: presence or absence of legitimacy through invited participation or exclusion

Participation or exclusion was dependent on students’ sense of legitimacy—they did not perceive legitimacy to be an automatic component of the role of ‘medical student’. This is illustrated by Student 6, Group 4 in Fig. 1. A sense of legitimacy, or lack thereof, therefore, strongly influenced student interactions in workplaces. Students conceived themselves as ‘spare parts’ (Willis et al. 2003; Drinkwater 2007; Smithson et al. 2010) to the functioning of workplaces (whether healthcare or social/voluntary care), and ‘outsiders’ who needed others to take responsibility for their presence and confer legitimacy upon them. This was despite the need for legitimacy being recognised by members of the medical school faculty as illustrated by the contrasting quotations of first a student, and then a faculty member:

¹ Additional quotations illustrating the range of each spectrum are available in the doctoral thesis on which this paper is based (Yardley 2011)

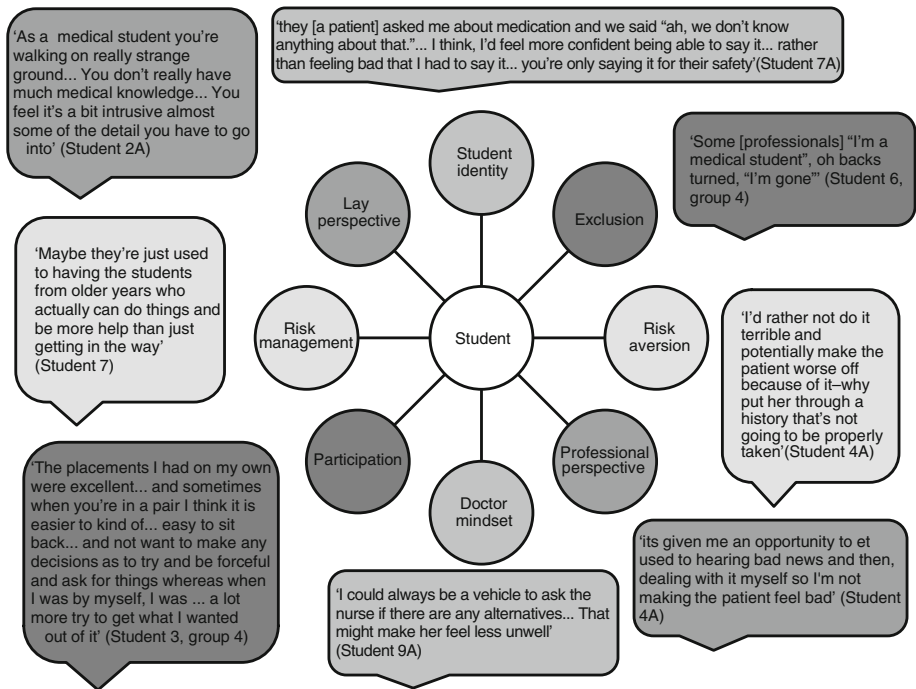


Fig. 1 Workplace spectra

... something that has been discussed with us more recently that perhaps could have been discussed in year one was actually being proactive and like negotiation... it just would have helped you feel a little bit more confident to adapt the placement and try and get the most out of it. Instead you sometimes felt like a spare part. (Student 2, Group 1)

But they do need to be able to get involved and they need to feel that their presence is wanted as opposed to sitting in the corner like a spare part, which is not helpful to anyone really. (Faculty 6)

There was no clear rationale for delaying teaching negotiation skills to students until the second year, although a possible explanation for this is that there was little expectation amongst many of the faculty, (unlike the faculty member quoted above), that students would be anything but observers in the first year. The attitudes of people in the workplace were closely monitored by students (Fig. 1, quotation, Student 6 Group 4). The reaction of others in the workplace described by student 6 (Group 4) emphasises the importance of being accepted not just by a named workplace supervisor but also by other agents within the workplace. Both acceptance and rejection had been experienced and were attributed to the identifying label of 'Medical Student'. Paradoxically, attending AEE in pairs did not increase student confidence. Rather, better integration into the workplace was reported when students went alone despite the increased challenge to move out of their comfort zones (e. g. Fig. 1, Student 3, Group 4). Another student describes the negative reception when with a group of peers in a particular workplace:

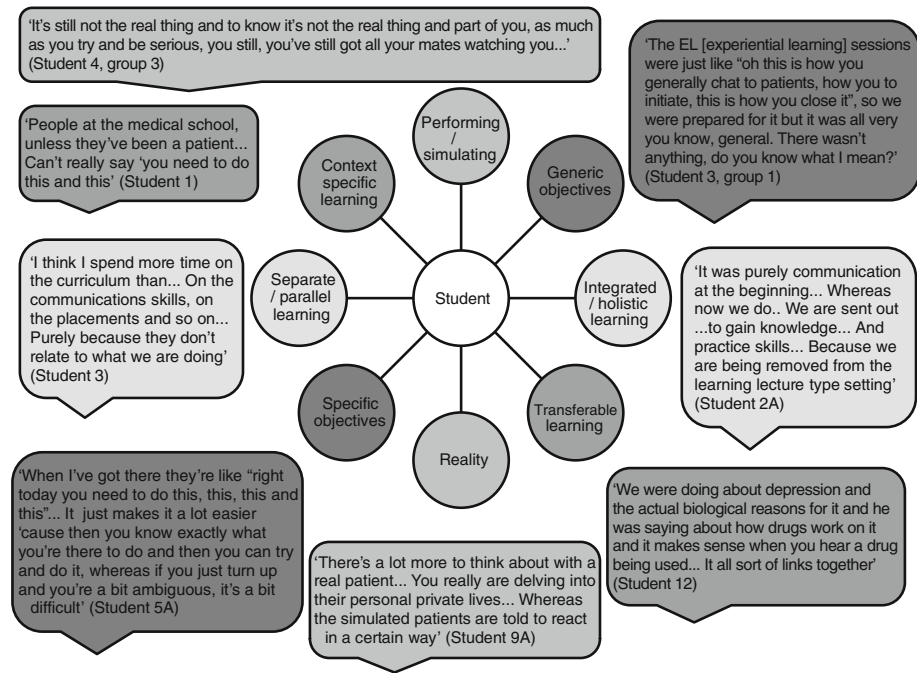


Fig. 2 Educational spectra

The nurse just came in and was, like, ‘right, three of you need to leave’ and we were just, ‘okay, which three?’ and she was, ‘don’t know, just three of you need to leave.’ (Student 5)

It was perhaps easier, from the workplace perspective, to integrate a single student rather than a group who were seen as a greater imposition. Nonetheless, other contributing factors appeared to be lack of understanding or even overt antagonism about the role of a medical student. These factors could lead to exclusion from simple patient interactions and less acceptance on a personal level than the legitimacy some students had experienced when volunteering prior to medical school. Students discussed going to hospitals on secondary school work experience placements in contrast to their AEE:

I did work experience at a hospital in [place name], when I was in year 11... a lot of what I did there was working with the nurses, made the beds, gave the meals out... it was actually quite nice to do stuff like that... to get a feel of working with people as well instead of just shadowing (Student 1)

It was different when I had work experience before starting medical school because... my mum’s a nurse and she set it up so everyone sort of knew me... you get treated with a lot more respect I suppose because they kind of know who you are, you’re the son of someone they know.(Student 2, Group 4)

The first of the above quotations emphasises the importance of having a ‘job’ to do, that is, to contribute usefully to the primary functions of the workplace. Other students reinforced the idea that paid or voluntary employment engendered acceptance in ways that being a

medical student did not. The second quotation recognises that legitimacy can be conferred on people through their relationships with others, in this case the student's mother was a nurse in the same hospital.

There was also one clear example in the study of a workplace supervisor recognising and acting to offer the students access to workplace 'common sense' that allowed them to interact in a socio- culturally acceptable way:

Some of them just put theatre blues on over their normal clothes... you just think 'no, come on', simple things like that. 'You're changing into theatre get up, you have to take your clothes off' – that's the whole point... it's simple things like how to... behave and what... you do in certain environments – maybe they haven't been told, but... we always get them putting on the lead coats the wrong way round, so what I always do is teach them, 'cause there's simple rules...(Workplace supervisor 9)

This example demonstrates that workplace supervisors have a vital role to play in facilitating the legitimacy of students during AEE though the sharing of informal knowledge.

Workplace spectrum two: personal perspectives and discomfort in transition from lay to medical

An increasingly prevalent reason for AEE in the literature is to provide a mechanism which ensures students understand and empathise with patient perspectives (Yardley et al. 2010). It has been debated whether or not this might reduce cynicism (Colliver et al. 2010). In the study setting AEE was suggested, by the school faculty, as a means to allow students to develop skills related to patient rapport prior to focusing on 'medical' content in patient interactions. Nonetheless, students constructed a spectrum in the workplace with lay perspectives at one extreme and a homogeneous professional perspective (often semi-detached, see Fig. 1, Student 4A) at the other. As can be seen in the figure quotation the student justifies their detachment on the grounds that she does not want to 'make the patient feel bad'. Other students discussed how they were actually more uncomfortable asking questions related to 'sensitive' psychological or social aspects of health and illness in contrast to what they perceived to be 'medical', that is, clinical concerns:

... with approaching more sensitive issues I tend to shy away... I just didn't think it was that necessary at the moment. These people are on a ward, they don't want me coming along and asking them about other sensitive issues... just because it wasn't directly relevant. (Student 9A)

These students 'experienced their experiences' from a social viewpoint, which was a combination of personal views and general lay cultural norms, but wanted to be able to make the transition to experiencing, or at least presenting their experiences to others, within accepted medical perspectives.

Workplace spectrum three: finding a role and moving from student identity to doctor mindset

The spectrum from student identity to doctor mindset describes at one extreme the use by some interviewees of 'medical student' status as a limitation by default—'can't-do' attitudes—and at the other extreme the development of 'can-do' attitudes. Some students would use their student status as a reason to avoid attempting challenges, instead treating

their interactions with excessive caution. This position was justified by recourse to their perceptions of low expectations from the faculty (and workplace supervisors) and uncertainty about what was 'allowed' (Fig. 1, Student 7A). The student quotation in Fig. 1 illustrates how a discourse of patient safety could be used to avoid any attempt to address patient concerns. This comment from a faculty member neatly encapsulates low expectations that may have influenced students:

Some consultants don't like the word 'student doctors' because, they feel that... they aren't really student doctors are they?... so that was a comment... which we've discussed and we have changed that back to medical students. (Faculty 12)

The objection of some placement providers to the term 'student doctors' is an example of limiting attitudes which may have been passed to students by others. Despite this, avoidance was not a universal reaction to patient questions. Students who allowed their perceptions of role to evolve and developed 'doctor mindsets' were still aware of their current level of knowledge and hence their own limitations. For example, this student describes how she might seek to be a link between the patient and a suitable professional:

I could always be a vehicle to ask the nurse if there were any alternatives [to current medication]... that might make her feel less unwell (Student 9A)

Rather than focusing on what she was unable to do, she has begun to seek to create a role for herself. We are not suggesting it is unimportant to ensure students do not take action or offer advice beyond their level of knowledge and competency. Rather, the spectrum refers to converting from a mindset where the student identity is used to limit potential and with an attitude of excessive caution, to a willingness to take the initiative in seeking to contribute and move out of comfort zones when engaging in learning opportunities. The themes of 'thinking like a student' and 'thinking like a doctor' have also been identified in later years (Lingard et al. 2003).

Workplace spectrum four: taking responsibility for 'risk'—from aversion to management through graded progression

In many cases instead of using forms of risk management to develop graded responsibility for students the issue of risk was addressed by denying students opportunities to act. Taking responsibility for risk refers to workplace supervisors actively managing perceived risk potential (for students and patients) in the entirety of workplace learning rather than medical risk of specific procedures and or interventions. Student perceptions of perceived risk differed from those of faculty and workplace supervisors. Students tended to paradoxically interpret reassurances from the faculty about not needing to act beyond their competencies as a requirement to not act beyond their comfort zones and developed an inflated sense of risk in even simple interactions with patients (for example see Fig. 1, Student 4A). This student's perspective has already been highlighted with respect to his perceptions that it is professional to be semi-detached in order not to make patients 'feel bad'. Here the same student expresses concern that talking to a patient—taking a history—might cause significant harm. A myth had developed around what students were or were not 'allowed to do', the origins of which could not be determined, and so erring on the side of caution, all participants reduced their expectations of student participation at this stage of their studies (see Fig. 1, Student 7 for the student perspective on this). That the balance of harm versus benefit weighed heavily on the minds of faculty was a significant contributing factor to this myth:

... one of the big pluses for the placement... is... there can be a long-term outcome for the... student. But one of the dangers balanced with that is if they don't get it right and none of this is addressed, just as the benefits are great to the student then psychologically the risks are – and realistically the risks are for the patient as well. (Faculty 10)

Underlying this spectrum is the effect of external influences such as health and safety legislation and patient safety policies which agents can choose to use to remove themselves or others from, rather than manage, risk regardless of the intention behind them (Brennan et al. 2010). How much of a risk this presents will, of course, be situation specific. The issue of risk—to either student or patient—is situated within a social context where an unintended consequence of increasing attention to safety (General Medical Council 2009) is a trend towards risk aversion rather than risk management (Gosbee 2005; Parker and Lawton 2006). In contrast Situated Learning Theory is based on the idea that students will be able to legitimately participate in workplaces and that as they gain experience, they will move from the periphery to more central roles in Communities of Practice. To do so there needs to be a gradient of responsibility—both offered and taken.

The four spectra discussed above all relate to social processes within workplaces and, as such, comparable issues might arise in other employment, regardless of external requirements for specified learning, such as those expressed through the medical school. We next discuss spectra that are more focused on educational consequences of social interactions and the potential for creation of medically useful knowledge. It should be understood that, in practice, these spectra are intertwined with and interdependent on the workplace spectra above.

Educational spectra: competency to gain medically useful knowledge

These spectra describe how the reality of learning is shaped through social interactions and are (1) generic-specific objectives, (2) parallel-integrated-learning, (3) context specific-transferable learning and (4) performing or simulating-reality. These spectra are represented in Fig. 2.

Educational spectrum one: generic—specific objectives

The faculty use of AEE within the curriculum was limited to a fairly narrow set of functions relating mainly to communication and personal and professional development (Table 1). This, combined with low expectations of novel learning, other than reinforcement of medical school activities, meant that students were not asked to achieve specific objectives for most placements. There was clearly tension between perceived logistical constraints and faculty desires to ensure that experiences made a valuable contribution to learning, as illustrated by this pair of faculty quotations, both from the same interviewee but at different points in the interview:

I don't think you can be too structured in terms of what they're going to learn... because individuals take different things from different placement experiences and have different interactions when they're there... so I don't think you can be too prescriptive... (Faculty 11)

I don't think we should be just sending them out on placements for placements' sake... there have been lots of examples when you talk to students about their experiences at placements where they've not been the best kind of learning

experience... we need to think carefully about... why they're going out there and what they're actually getting from that experience, rather than just saying... they'll be all right, they'll work something out, they'll learn something... (Faculty 11)

The intention was to identify generic learning which could take place in a number of settings. In theory, this should be achievable and beneficial—potentially leading to student understanding about transferable knowledge and functioning in a number of contexts. What was underestimated was the extent of influence situational or environmental specifics would have upon students. In this scenario, students reasoned that AEE could not be expected to contribute significant learning because of the variability of their experiences. This student explains:

... if you look at it like the placements are really valuable to our actual exams then there's a real discrepancy because some students are getting so much more help than others towards their exams because you can get a series of really bad placements and someone could get a series of really useful ones. (Student 2, Group 1)

Students interpreted 'generic' to mean lacking in importance: the objectives were vague (see Fig. 2, Student 3, Group 1), not easily translated into specific actions, nor immediately and obviously relevant to their concerns of achieving medical knowledge, as defined by activities within the medical school. When they looked to workplace supervisors for direction it was not always forthcoming:

... we assumed... the nurses would know... we thought they would be informed. I think they knew we were going to be there...but they didn't know what we were there for. (Student 3)

This is also illustrated by the quotation of Student 5A in Fig. 2. As has been established, more generally with competency-based curricula (Taber et al. 2010), the setting of objectives can result in lack of aspiration, with the objectives seen as maximum not minimum criteria of achievement in practice. Paradoxically, the objectives then are effectively used by some students to limit or exclude learning. At the opposite end of the spectrum an exception to this was if a workplace supervisor took charge of the situation, imposing their own specific objectives on the experience (Fig. 2, student 5A).

Educational spectrum two: parallel—integrated learning

Contrary to expectations in the literature of AEE as a means to integrate (as opposed to coordinate or synchronise) components of Medical Education (e.g. (General Medical Council 2009) this study identified a discourse of AEE as part of a parallel curriculum. Despite the rhetoric of the school using an integrated spiral curriculum AEE was only being used to deliver certain types of knowledge content. The faculty separation of content by pedagogy led students to view experiential learning as a parallel activity to the 'main curriculum' rather than creating a holistic view of relevant knowledge for future practice (Fig. 2, student 3 describes communications skills and placements as being separate to 'the curriculum'). Students did not expect placement learning to be examined:

...we didn't really expect it and it came up in the OSSE [objective structured skills examination] [laughs]... interview a patient... it had just completely slipped my mind that they could even [laughs] examine that' (Student 10)

... although they're obviously important and you can get an OSSE score on them, which we did – interviewing a patient which no-one was expecting for that reason,

because we didn't think it would come up because we didn't think it was, you know, sort of related to what we'd done.(Student 3)

Learning derived from AEE was conceptualised as part of a parallel curriculum to the medical science of early undergraduate degrees as well as not necessarily related to medical work in a clinical sense, although the latter became more integrated in students' minds as they progressed into the second year (Fig. 2, Student 2A). As Student 2A suggests, this meant the students were not averse to learning content knowledge during workplace experiences, but they were not sure how to go about achieving this, perhaps needing more explicit links from the faculty. As time progressed, some students developed an understanding of the concept of 'clinical knowledge' that could then become a link between in-house science and experiential learning:

... this year my placements have been a little bit more clinical. I was on the wards in cardiology, where I had a chance to take a history from a patient... and I was also at another healthcare facility for people who are terminally ill and can't look after themselves anymore (Student 7A).

Educational spectrum three: performing/simulating—reality

Students spontaneously compared AEE with simulated patient interactions. Their primary concern during AEE was responsibility for the impact of interactions with 'real' patients. Students described real patients perceiving them as doctors and needing to live up to these patients' expectations as the patients would not know if the student had underperformed. In contrast the foremost concern during simulated interactions was one of performance (Fig. 2, Student 4, Group 3) and, as illustrated in the Figure quotation, difficulties creating psychological fidelity during simulations. Students were also suspicious of simulated patients, seeing them almost as agents of the medical school institution rather than representatives of patient perspectives:

... simulated patients try to do things a lot more by the book, whereas real patients... they aren't as... straightforward as you might think – you wouldn't normally go through, confidentiality with them and then consent and that sort of stuff, 'cause they just... they don't see it as being important, whereas simulated patients will – that's only probably because they've been told to... by the medical school. (Student 3)

This difference in focus limited transfer of skills between the two settings, compounded by student confusion when differences occurred between tutor-simulated patient and doctor-patient interactions. An example of this was the explicit discussion of issues of consent and confidentiality, as experienced practitioners and real patients (illustrated in the quotation above) did not follow a set routine. Students made sense of dissonance between the two settings by developing an understanding which viewed simulated patients as following the instructions of the medical school; instructions which were not in tune with real practice.

Educational spectrum four: context specific—transferable learning

Students recognised AEE exposed them to real practice, the locus of their future medical roles, but continued to cite the locus of real learning within the medical school. They did not easily identify the potential to either transfer learning from school activities into the workplace, or vice versa. This potential loss or waste of learning was explained through the

following metaphor, receiving widespread agreement in the discussion group in which it was offered:

Student 6: You almost park it [knowledge]... it is important but it's not relevant for the minute now and you kind of just almost park it away knowing that you will come back to it later... you might even have notes on it that you've written that you just don't look at them for the moment

Student 4: But how often do you park it and then never find the car again? (Group 3)

Alternatively students were unsure of the trustworthiness of faculty representations of practice:

... people at the medical school, unless they've been a patient, can't really say 'you need to do this and this'... (Student 1)

Instead of integration, real practice and real learning remained relatively context specific as the students did not understand the future relevance of school activities and could not put workplace-based learning to current use. The relatively rare exceptions to this were when (through chance) students had experiences which contained closely aligned content to contemporaneous aspects of basic science (Fig. 2, student 12)—the clinical learning described above.

Discussion

Principal findings and meaning

Conceiving the variables present in social interactions as a series of spectra has allowed us to develop a framework that theorises AEE as a complex social experience in action. Abstract predictions for the learning content arising from particular situations cannot be made with precision because the social processes of authentic early experiences which influence the resultant meaning-making and consequences are complex, individualised by students, and subject to dynamic interactions with each other (Regehr 2010). A change with respect to one spectrum will produce unpredictable changes in others. The dyads of variables that form each spectrum do, however, make explicit the parameters within which social interactions are conducted. Unless AEE is appropriately placed on each of the workplace spectra, then socio-cultural theories suggest that students will not be able to adequately engage in the processes of the educational spectra. Therefore, the identification of this series of spectra presents a challenge to educators, in academic institutions and in authentic workplaces, to understand and work with social processes and interactions that influence AEE.

These findings also suggest that there is potential to further develop AEE as an educational intervention. Prospective use of the spectra in curriculum design could help delineate important characteristics of constructive contexts for authentic early experiences.

The perceived division of content by pedagogy is a deviation from socio-cultural learning models (Dornan et al. 2007, 2011). Theoretical models are based on the premise that learning of all or any content is deepened and strengthened through experience, as experience provides the learner with additional meaning. Students were aware of increased responsibilities when interacting with real people (patients or otherwise) in authentic contexts, but interpreted differences between this and the performance or simulation of classroom interactions as an understanding that real practice might be located in

workplaces but real learning, as defined by the medical school (and therefore required of them) was different. A division was made between the students' role—interpreted through their perceptions of the medical school expectations—and 'medical' work.

Strengths and limitations

Interviews and discussion groups are a means of constructing knowledge which is relational, conversational, contextual, and language based (Mishler 1986). As such these techniques produce socially constructed encounters presenting subjective perspectives. The findings are presented as such albeit with the use of theory and analytic techniques to identify underlying social processes. The spectra describe dyads of variables that influence AEE. The naming of these variables is in keeping with socio-cultural perspectives on experiential learning in addition to holding resonance for the student participants of the discussion groups. As such the spectra are grounded in and represent the students' subjective experiences and perspectives. The consequences of each spectrum for individual students will depend on where along each spectrum their personal experiences fall.

When variables in the social interactions of an educational intervention are identified amongst multiple participants, the focus on the process, as well as potential consequences, allows complexity and possible contradictions to be retained as part of the resultant understanding. This approach provided inbuilt checks and balances to the data analysis. The data captured interviewees' current sense of AEE and contemporaneous understanding which is different to previous studies. Situating the study in a single institution allowed an in-depth exploration of multiple perspectives and perceptions of the AEE as a concept as well as the medical school as an institution. It is possible, however, that some of the findings are setting specific. We note, however, that many of the variables are comparable to those in later years, such as the importance of legitimacy expressed through facilitating participation (Dornan et al. 2007, 2011) despite the different intended purposes of AEE to later clerkships. The spectra also resonate with the findings of van der Zwet et al. who describe the need for 'developmental space' in which learning can occur during clerkships (van der Zwet et al. 2010). These authors define developmental space as explicit and implicit opportunities for identity development alongside learning that arises from workplace context and interactions. The spectra can be conceived of as descriptors of this space in the context of AEE. In addition our interpretation resonates with seminal sociological studies (Merton et al. 1957; Bloom 1973; Becker et al. 1977).

The theoretical developments arising from the formulation of spectra have the potential to transcend the original empirical data generation. It is intuitive to expect the spectra might transfer as a framework to other Medical Education contexts (locations or educational interventions which involve social interactions). While the positioning of experiences on the spectra would be expected to vary between contexts, the underlying social processes named as variables are potentially transferable. The transferability of our emergent theory of the spectra nonetheless requires further investigation in different fields to the study context.

Implications for practice and further research

We recommend that curriculum overseers and workplace supervisors review their AEE placements to assess if the dyadic variables found here have been adequately considered and planned for. This includes consideration of the following: (1) In situ support for students as they make the transition from a 'lay' (i.e. general public) perspective to a

professional perspective; (2) Participation: is it clear to all parties what competencies a student going on this placement has and, therefore, what they will be able to participate in, and with what level of supervision? Failure to address this tends to lead to the student being either encouraged to do things beyond their limits or not 'being allowed' to do anything. Consider how the student can be a 'junior colleague' to their supervisor in the place of work; (3) Risk management: in a competency-based curriculum it needs to be clear what sort of activities a student at any particular stage can participate in. What students learn 'on-the-job' creates potential risk related to both participation and exclusion. For example it may not be appropriate for a new student to directly undertake an invasive procedure but with guidance they could assist with increasing responsibility. Alternatively a student excluded from practice may not effectively learn how to make judgements about different actions in different circumstances; (4) Identification of context specific and transferable learning: with the placement briefings it would be useful for clinicians/medical school faculty to collaborate in order to highlight for students specific objectives for individual placements, alongside offering examples of when and why these objectives might apply to other clinical workplaces, and link into elements of the medical school learning.

This study did not specifically seek to inform assessment of workplace-based learning. Rather the emphasis was on how and why authentic early experience 'worked' for students, regardless of formal assessment. There is, nonetheless evidence in the data which might be further investigated with respect to assessment. For example, explicit explanations of difference between learning practices in the medical school and seeing practices enacted in workplaces could improve learning and be used as a focus of reflection. Explicit alignment of AEE content and activities with other elements of the curriculum (e.g. a problem-based learning case) could facilitate the design of integrated assessments that allow students to demonstrate enhanced understanding derived from AEE. The study also demonstrates that students learn much more about their own roles and identities in different workplaces than they declare to the medical school faculty. This raises questions about how assessment might be designed to incorporate individualization for students to demonstrate unpredicted or unintended learning.

The understanding this paper offers is important because unless it is recognised how different influences make these processes variable in practice then the consequential impact of different influences cannot be accounted for in design and implementation of AEE in ways that will minimise undesirable consequences and maximise positive development of students. It remains to be seen how much potential there is for prospectively engineering experiences by active consideration of the spectra or influencing meaning-making through explicitly raising student awareness of these spectra. Further work is needed to understand if the findings of this study are common to other areas of vocational education, for example in different institutional settings, international contexts and different professions or disciplines.

Acknowledgments This work was supported by Keele University Medical School and the Primary Care and Health Sciences Research Institute at Keele University. Additional funds were received from the Association for the Study of Medical Education and North Staffordshire Medical Institute.

References

- Becker, H., Geer, B., & Strauss, A. (1977). *Boys in white*. New York, NY: Transaction.
Bloom, S. W. (1973). *Power & dissent in the medical school*. New York, NY: The Free Press.

- Brennan, N., Corrigan, O., Allard, J., Archer, J., Barnes, R., Bleakley, A., et al. (2010). The transition from medical student to junior doctor: Today's experiences of Tomorrow's Doctors. *Medical Education*, *44*, 449–458.
- Colliver, J., Conlee, M. J., Verhulst, S. J., & Dorsey, J. K. (2010). Reports of the decline in empathy during medical education are greatly exaggerated: A re-examination of the research. *Academic Medicine*, *85*, 588–593.
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research 3e*. London: Sage.
- Craig, P. D., Macintyre, S., Mitchie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *British Medical Journal*, *337*, 979–983.
- Dornan, T., Boshuizen, H., King, N., & Scherpbier, A. (2007). Experience-based learning: A model linking the processes and outcomes of medical students' workplace learning. *Medical Education*, *41*, 84–91.
- Dornan, T., & Bundy, C. (2004). What can experience add to early medical education? Consensus survey. *British Medical Journal*, *329*, 834–839.
- Dornan, T., Littlewood, S., Margolis, S. A., Scherpbier, A., Spencer, J., & Ypinazar, V. (2006). How can experience in clinical and community settings contribute to early medical education? A BEME systematic review. *Medical Teacher*, *28*, 13–18.
- Dornan, T., Tan, N., Boshuizen, H., Gick, R., Isba, R., Mann, K., Scherpbier, A., Spencer, J., & Woolley, E. (2011). *Experience-based learning (ExBL). Realist synthesis of the conditions, processes, and outcomes of medical students' workplace learning*, In peer review edn, Medical Teacher.
- Drinkwater, J. (2007). Can a medical students be of use while still learning? *Clinical Teacher*, *4*, 189–192.
- Engeström, Y. (2001). Expansive learning at work: toward an activity theoretical reconceptualization. *Journal of Education and Work*, *14*, 133–156.
- Eraut, M. (2004). Informal learning in the workplace. *Studies in Continuing Medical Education*, *26*, 247–273.
- Frey, J. H., & Fontana, A. (1991). The group interview in social research. *Social Science Journal*, *28*(2), 175–187.
- General Medical Council. (2009). *Tomorrow's doctors*. London: General Medical Council.
- Gosbee, L. L. (2005). Methods and tools. In J. W. Gosbee & L. L. Gosbee (Eds.), *Using human factors engineering to improve patient safety* (pp. 35–50). Illinois: Joint Commission Resources, Illinois.
- Hopayian, K., Howe, A., & Dagley, V. (2007). A survey of UK medical schools' arrangements for early patient contact. *Medical Teacher*, *29*, 806–813.
- Howe, A., Dagley, V., Hopayian, K., & Lillicrap, M. (2007). Patient contact in the first year of basic medical training: Feasible, educational, acceptable? *Medical Teacher*, *29*, 237–245.
- Kvale, S., & Brinkman, S. (2009). *Interviews: Learning the craft of qualitative interviewing* (2nd ed.). London: Sage.
- Langdridge, D., & Hagger-Johnson, G. (2009). *Introduction to research methods and data analysis in psychology* (2nd ed.). Harlow: Pearson Education Limited.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Lingard, L., Garwood, K., Schryer, C. F., & Spafford, M. (2003). A certain art of uncertainty: case presentation and the development of professional identity. *Social Science and Medicine*, *56*, 603–616.
- Littlewood, S., Ypinazar, V., Margolis, S. A., Scherpbier, A., Spencer, J., & Dornan, T. (2005). Early practical experience and the social responsiveness of clinical education: systematic review. *British Medical Journal*, *331*(7531), 387–391.
- Merton, R. K., Reader, G., & Kendall, P. L. (Eds.). (1957). *The Student Physician: Introductory studies in the sociology of medical education*. Cambridge, MA: Harvard University Press.
- Miles, M. B., & Huberman, A. (1994). *An expanded sourcebook: Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.
- Mishler, E. G. (1986). *Research interviewing context and narrative*. Cambridge, Mass: Harvard University Press.
- Mitchell, L. (1999). Combining focus groups and interviews: telling how it is; telling how it feels. In J. Kitzinger & R. S. Barbour (Eds.), *Developing focus group research: politics, theory and practice* (pp. 36–46). London: Sage.
- Monrouxe, L. V. (2009). Negotiating professional identities: dominant and contesting narratives in medical students' longitudinal audio diaries. *Current Narratives*, *1*, 41–59.
- Monrouxe, L. V., Rees, C., & Bradley, P. (2009). The construction of patients' involvement in hospital bedside teaching encounters. *Qualitative Health Research*, *19*(7), 918–930.
- Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed.). Newbury Park, California: Sage.
- Norman, G. (2009). Teaching basic science to optimize transfer. *Medical Teacher*, *31*, 807–811.

- Parker, D., & Lawton, R. (2006). Psychological approaches to patient safety. In K. Walshe & R. Boaden (Eds.), *Patient safety: Research into practice* (pp. 31–40). Maidenhead: Open University Press.
- Regehr, G. (2010). It's NOT rocket science: rethinking our metaphors for research in health professions education. *Medical Education*, *44*, 31–39.
- Smith, J. (1996). Beyond the divide between cognition and discourse: Using interpretative phenomenological analysis in health psychology. *Psychology and Health*, *1*, 261–271.
- Smithson, S., Hart, J., & Wass, V. (2010). Students' hopes and fears about early patient contact: Lessons to be learned about preparing and supporting students during the first year. *Medical Teacher*, *32*, e24–e30.
- Taber, S., Frank, J. R., Harris, K. A., Glasgow, N. J., Iobst, W., & Talbot, M. (2010). Identifying the policy implications of competency-based education. *Medical Teacher*, *32*, 687–691.
- van der Zwet, J., Zwietering, P. J., Eunissen, P. W., van der Vleuten, C. P. M., & Scherpbier, A. J. J. A. (2010). Workplace learning from a socio-cultural perspective: creating developmental space during the general practice clerkship. *Advances in Health Sciences Education*, *16*, 359–373.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. New York, NY: Cambridge University Press.
- Willis, S., Jones, A., McArdle, P., & O'Neill, P. A. (2003). A qualitative study of the attitudes to teamwork from a traditional and an integrated undergraduate medical course. *Advances in Health Sciences Education*, *8*, 139–148.
- Yardley, S. (2011). *Understanding authentic early experience in undergraduate medical education*, Doctorate edn. Keele: Keele University.
- Yardley, S., Brosnan, C., & Richardson, J. (in press). The meaning of authentic early experience for medical students: creation of student Mētis. *Medical Education*.
- Yardley, S., Littlewood, S., Margolis, S. A., Scherpbier, A., Spencer, J., Ypinazar, V., et al. (2010). What has changed in the evidence for early experience? Update of a BEME systematic review. *Medical Teacher*, *32*, 740–746.