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Placement or displacement: An ethnographic study of space in the clinical learning environment

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ABSTRACT

Purpose: This paper aims to examine the spatial attributes in the hospital ward environment and their impact on medical students' learning and experience of the clinical workplace.

Materials and methods: An ethnographic study was conducted in a Scottish teaching hospital, combining observations and interviews over a period of 10 months. Two teaching wards served as the field-sites where approximately 120 h of non-participant observations took place sequentially. In addition, 34 individual interviews were conducted with identified key informants that included medical students, junior doctors, postgraduate trainees, consultant supervisors, ward nurses and hospital pharmacist. A combination of Actor-network Theory (ANT) and Social cognitive theory (SCT) was applied to analyse data pertaining to spatial attributes and their relevance to clinical teaching and learning.

Results: Analysis of the observational and interview data led to generation of the following themes: spatial attributes in the clinical workplace can enable or constrain teaching and learning opportunities, inadequate spaces impact students' and junior doctors' sense of value, short clinical rotations influence a sense of ownership of doctors' spaces, and contested nature of space in the clinical environment. Several illustrations of the field-sites help to contextualise the themes and aid in understanding the participants' experiences and perceptions.

Conclusions: Our findings suggest a complex entanglement of space with medical students learning and wellbeing in the clinical workplace. Provision of suitable spaces needs to be a core consideration to realise the full potential of work-based learning in medicine.

KEYWORDS

Space; learning; clinical workplace; undergraduate medical education; student wellbeing

Introduction

Practice-based learning forms a central aspect of undergraduate medical education that takes place in the clinical workplaces. It enables students to develop the knowledge, skills and attitudes required in their professional practice together with professional socialisation and institutional acculturation. However, there are concerns about maintaining high quality clinical education, and reductions in teaching time in contemporary, pressured healthcare environments (Prideaux et al. 2000; Gillies et al. 2022). Teaching in the clinical environment is a demanding task that busy clinicians assume in the context of existing clinical responsibilities; this task often becomes more challenging and frustrating owing to lack of suitable spaces or institutional support (Ramani and Leinster 2008).

Repeatedly, medical educationalists have attempted to incite a discussion on the relevance of physical spaces for medical students' and junior doctors' learning and wellbeing (Lewin and Reeves 2011; Kitto et al. 2013; Nordquist et al. 2016; Hawick et al. 2018). Despite these calls, a recent scoping review highlighted the lack of empirical research on the subject (Uys et al. 2023). A lack of physical spaces is considered a major limiting factor in the expansion of undergraduate education in the primary care context (Gillies et al. 2022). Notwithstanding the acknowledgement

Practice points

- Provision of suitable doctors' spaces is essential to realise the full potential of work-based learning.
- Space needs to be a core consideration when reviewing teaching and learning in medicine, given its intimate link to students' and junior doctors' learning and wellbeing.
- The relative disregard for doctors' spaces is linked to the temporality of the clinical placements, with shorter lengths inhibiting any sense of ownership or investment in space.
- Ethnographic approaches have the potential to illuminate the negotiated reality of space, the interwoven relational and political attributes relevant to the informal curriculum in the clinical setting.
- A hybrid theoretical lens brings into the frame the actors traditionally left out to develop a spatial discourse while respecting emic meanings.

that space can influence medical students' learning in productive and unproductive ways, the area remains under-explored and in need of empirical data.

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The spaces and places of professional practice, although produced by human activity and meaning, are more than human (Fenwick 2014). In a strive to make sense of spatial attributes and their relevance to clinical teaching and learning, Actor-Network Theory (ANT) can be applied to bring both human and non-human actors into consideration. ANT helps to conceptualise 'space' as having the capacity to act (agentic) and having the capacity to make things happen (productive) (Latour 2007). 'Space' is more than a backdrop of human action playing a key role in environmental dynamics; and reciprocal associations of how people behave with and within spaces deserves attention. Indeed, a key aspect of workplace learning is the interaction between the environment and the individual, as established in the widely accepted Social Cognitive Theory (SCT) (Bandura and Walters 1977). SCT takes a human-centric view of learning, and highlights learning as a dynamic interplay between the learner, the environment, and the learner agency. Central to SCT, is the concept that an environment, such as a hospital ward, is only a *potential* learning space until 'actualization' is initiated by the learner through exercising agency – the motivations and behaviours of the cognitive learner (Bandura 1986). There has been widespread use of SCT in medical education, and it has helpfully highlighted the value of community and participatory learning in clinical workplaces (Mann 2011). However, SCT does not take into account the role of non-human factors in the social environment, and their implications in configuring work-based learning and practice (Fenwick 2014).

We believe that it is possible and desirable to utilise the dual lens of SCT and ANT to view the operations in the clinical workplace, to understand the socio-spatial perspective of student learning and experience. Interconnecting the two theories in this empirical research should aid recasting the student experiences of clinical placements in a spatial discourse. Additionally, we adopt an ethnographic approach to illuminate the everyday, lived realities of the healthcare professionals in the workplace, and challenge the taken-for-granted assumptions regarding the physical environment (Atkinson and Pugsley 2005). This is helpful since a synergism is proposed between ethnography and ANT in exploring the spatial dimensions and to uncover the complex interplay between environmental factors and students' workplace learning (Kitto et al. 2013; MacLeod et al. 2019). This paper aims to understand the experiences and perceptions of medical students shaped by spatial arrangements in the clinical workplace. The specific research question was: How do spatial attributes in the hospital ward environment impact medical students' experience and learning in the clinical workplace? Researching the lived component of spaces in medical education should expand our understanding of sociomaterial factors affecting work-based learning, and generate recommendations for creating spaces that enable learning.

Methods

Study setting

The research context is a teaching hospital in Scotland, which serves as a clinical training site for undergraduate medical students and postgraduate trainees. The study was conducted in two teaching wards, which were selected as the field-sites on the basis of Spradley's criteria of

accessibility, unobtrusiveness and permissibility (Maanen and Spradley 1980). These were representative of a standard clinical area in the National Health Service (NHS), the state-funded healthcare organisation in the UK. Figure 1 illustrates the layout of the 30-bedded ward, which served as the observational field (site 1) for the ethnographer for the initial five months of data collection.

Figure 2 illustrates the layout of second field-site, which was a 24-bedded ward, and served as the observational field (site 2) for the ethnographer for the subsequent five months of the data collection period. As seen in the figures, there are variability in the ward layouts and the doctor's room across the hospital. Both these wards hosted clinical placements for undergraduate medical students, the majority of these being years 4 and 5 students of the five-year long MBChB programme.

Data collection

Ethical approval was obtained from the Institutional Research and Ethics committee (SMED REC Number 22/54). Additionally, access approval was obtained from the key gatekeepers, including the head of the undergraduate medical course (MBChB), the clinical supervisors and nurses in-charge at the selected sites. Observations were performed by the primary researcher (SG), who is a staff-member affiliated with the MBChB programme but has no clinical role. Non-participant observations took place over a period of ten months, amounting to approximately 120 h. An exploratory approach combined observations with interviews which were conducted with students and staff on the ward with whom the ethnographer developed close contact and trusting associations. As described in the ethnographic literature (Atkinson and Hammersley 1983), a combination of judgement and opportunistic sampling was adopted, with the aim of selecting a range of informants to avoid partial or incomplete accounts of the workplace, and to complement and clarify issues arising in the observations. Written informed consent was obtained from all students and staff shadowed and interviewed, which included permission for audio-recording and transcribing. No identifying information regarding consenting individuals was recorded or transcribed. Participants were given identity codes to preserve anonymity, such as MS for Medical Student, FY for Foundation Doctor (junior doctor in the UK), PT for Postgraduate Trainee, CS for Consultant Supervisor, WN for Ward Nurse and HP for Hospital Pharmacist.

The researcher observed various informal teaching and learning activities in the field sites, including group discussions of the medical team, ward rounds and handovers. During the fieldwork, SG introduced the study to students and staff as she located them in the wards, adopting a position of 'professional stranger' displaying respect and sensitivity (Burgess 1984). Field notes were taken during observations, processed within 24 h and discussed with the research team every two weeks (Maanen and Spradley 1980). Data collection and analysis were done concurrently, such that the emerging themes from observations and interviews guided further fieldwork (Atkinson and Hammersley 1983). Given the difficulty in predicting the social distribution of knowledge in the field prior to initiation of fieldwork, no rigid observation or interview

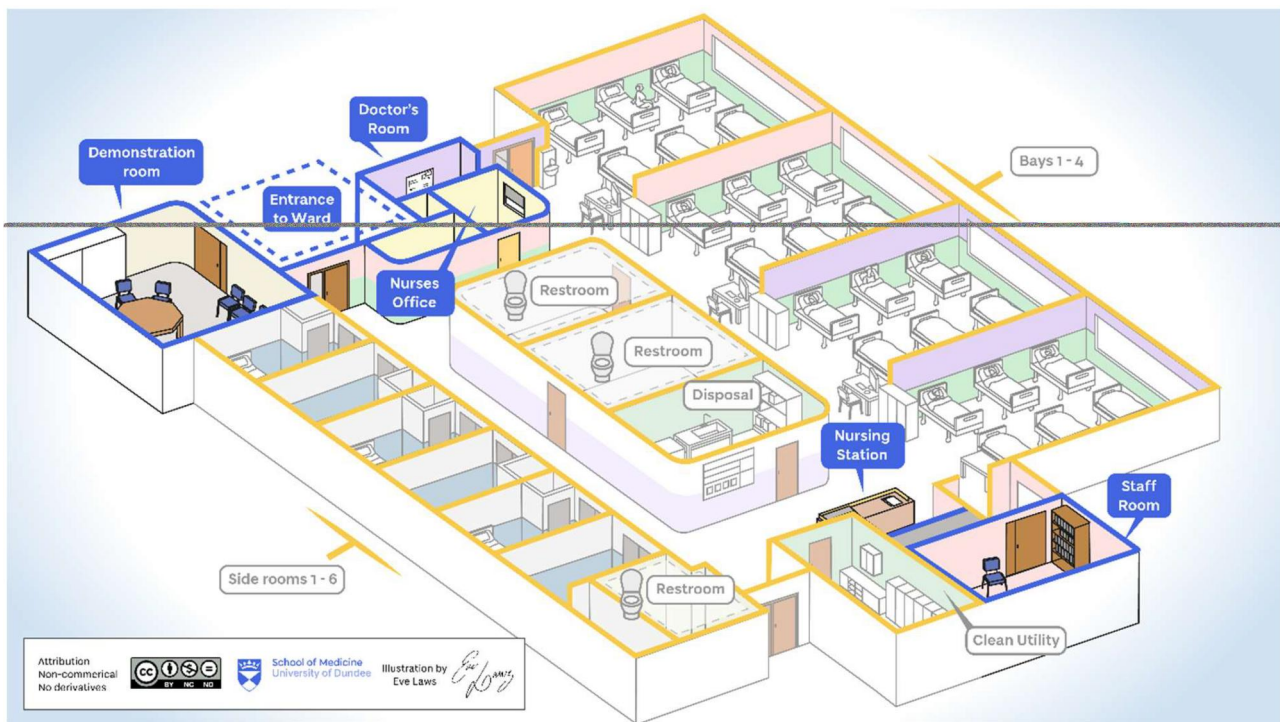


Figure 1. Research field-site 1 – an NHS teaching ward.

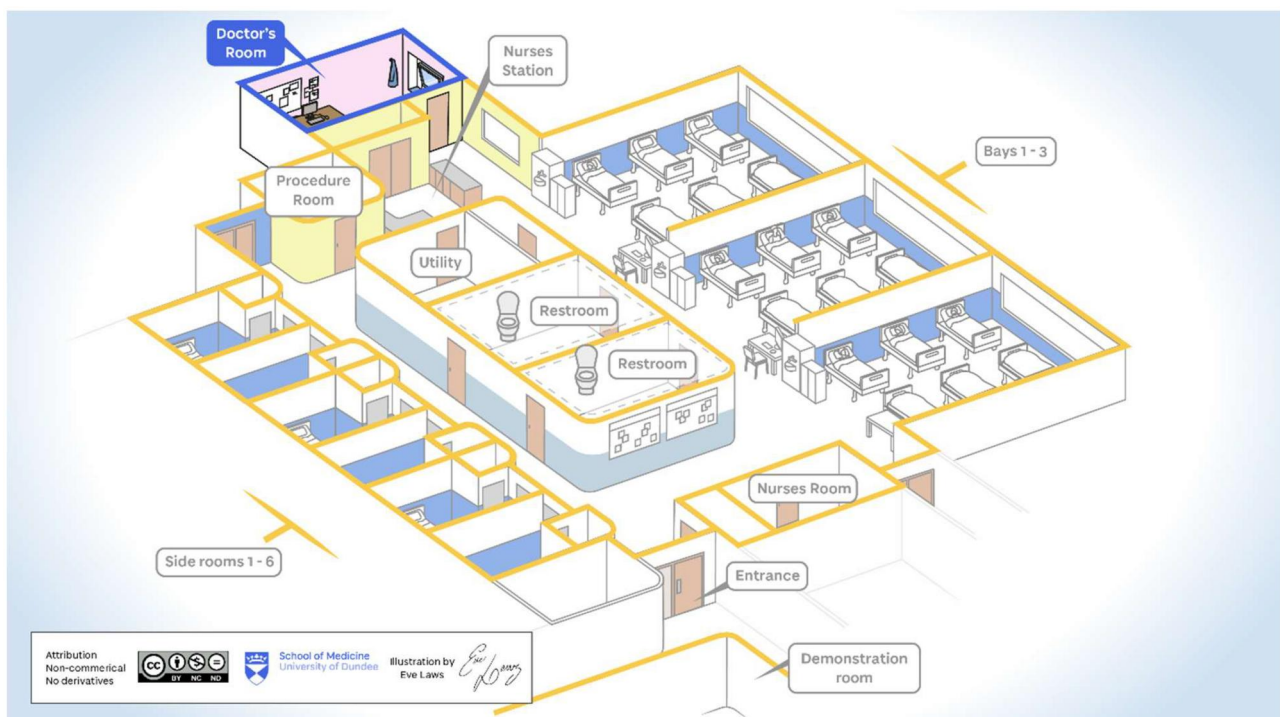


Figure 2. Research field-site 2 – an NHS teaching ward.

schedule was drafted. The flexible and reflexive approach to observations and interviews ensured rich data collection.

Data analysis

For the preparation of this paper, all observational field notes and interview transcripts were screened to extract relevant data related to the spatial elements in the selected wards, and their impact on medical students' teaching and learning. The inductive data was discussed in team meetings together with the illustrations of the field sites

prepared with the help of the medical school artist. The analysis aimed to understand and reconstruct the multiplicity of views related to doctors' spaces as evidenced in observation and interview data (Bressers et al. 2020). A combination of ANT and SCT was applied to make sense of the spatial attributes, their relevance to clinical teaching and learning, and to enhance the analytic quality. The thematic output was enriched by method triangulation (observations and interviews) which allowed comparison and contrast of participants verbalised perceptions with their actual actions. Data source triangulation (from several different participant groups) helped to cross examine the

emerging claims through thematic analysis (Braun and Clarke 2019). Additionally, the diverse backgrounds and expertise of the research team members enhanced the rigour in this qualitative project, through incorporating diverging views. All five members of the research team are active medical education researchers with involvement in undergraduate and/or postgraduate healthcare professionals' education. SG, SH and LP have healthcare backgrounds with clinical experience, while CK and MM are social scientists with ethnographic experience in diverse settings. Collectively, we aimed for collaborative or team reflexivity through engaging in profound questioning and challenging assumptions regarding analytic decisions and diversity of perspectives (Olmos-Vega et al. 2022).

Results

An ethnographic approach allowed deep immersion in the field for the primary researcher (SG), resulting in authentic observational data that included description of the setting and the participant interactions therein. The two field-sites may be considered representatives of hospital ward setting, and the work-based learning environment for medical students. It is worth noting though, that there is a significant difference in the dedicated doctor's space- the doctor's room in the two selected wards. This again is reflective of some variability that exists with respect to the size and positioning of doctor's rooms across the healthcare areas.

The researcher noted that the area marked 'Doctor's Room' in Figures 1 and 3 (field-site 1) was a narrow rectangular space, containing wall tables with two fixed desk computers, a phone and three chairs. This served as the regular working office for FY doctors, also getting utilised by students, postgraduate trainees and any visiting consultant for relevant patient care-related jobs. As illustrated in the figures, the doctor's room looked like an extension of the corridor and exposed since it had no door. The first

impression of the doctor's room in field-site 1, when the ethnographer (SG) began fieldwork, was that it was small and narrow. On the first visit to the ward, when the nurse-in-charge toured the researcher around the field and showed her the room, the spontaneous question was – 'Is this the doctors' room? Is that it? Or is there another space for doctors?'. This exchange depicts the impression the doctor's room (field-site 1) created on the ethnographer (SG), a 'marginal native' in the field (Burgess 1984).

Figure 3 illustrates the doctor's room in the ward with doctors and students discussing cases and doing patient-care related tasks (requests, referrals, discharges etc). In numerous informal conversations during fieldwork, this room was referred to by the participants as 'cubbyhole,' 'cave,' 'the offshoot,' 'the strip at the end,' 'like Harry Potter under the stairs,' 'a cupboard' and analogies similar to cramped and claustrophobic spaces.

On the contrary, the researcher noted that the area marked 'Doctor's Room' in field-site 2 (see Figures 2 and 4), was a much bigger space, containing L-shaped big wall desks with three fixed desk computers, a phone and five chairs. In addition, this doctor's office had a sink and a table with tea and coffee facilities. The room had a door and accommodated two trolleys on the side with patient notes and files, these being used by students and staff regularly. During five months of fieldwork, the ethnographer noted that it was usual for a group of five or six medical staff including medical students, FY doctors and on occasions postgraduate trainees to be sitting and discussing healthcare related subjects in the doctor's room in field-site 2. The room gave the impression of a secure and safe space where students and staff were spotted sitting and chatting in a relaxed manner while performing various tasks related to patient care, as illustrated in Figure 4. The ethnographer's observations in the two wards and doctor's spaces are further presented below in relation to individual themes.

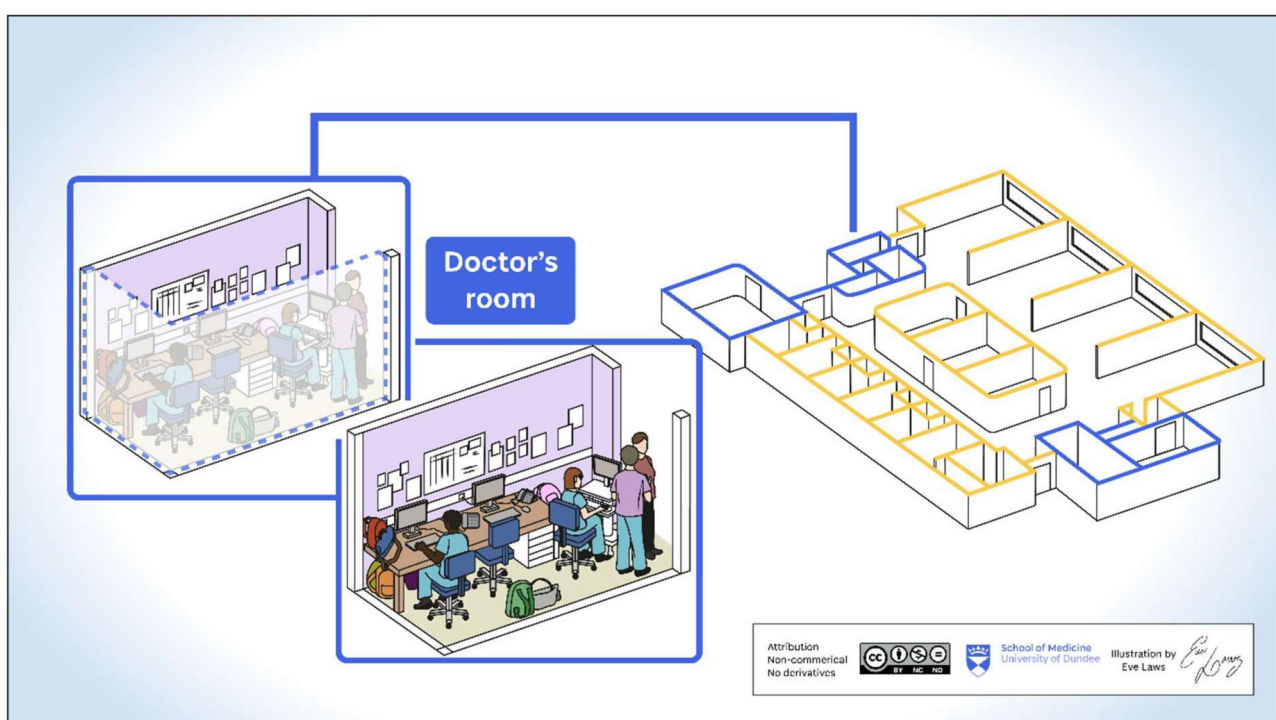


Figure 3. Doctor's room in field-site 1 illustrating doctors doing patient care activities (requests, referrals, discharges etc).

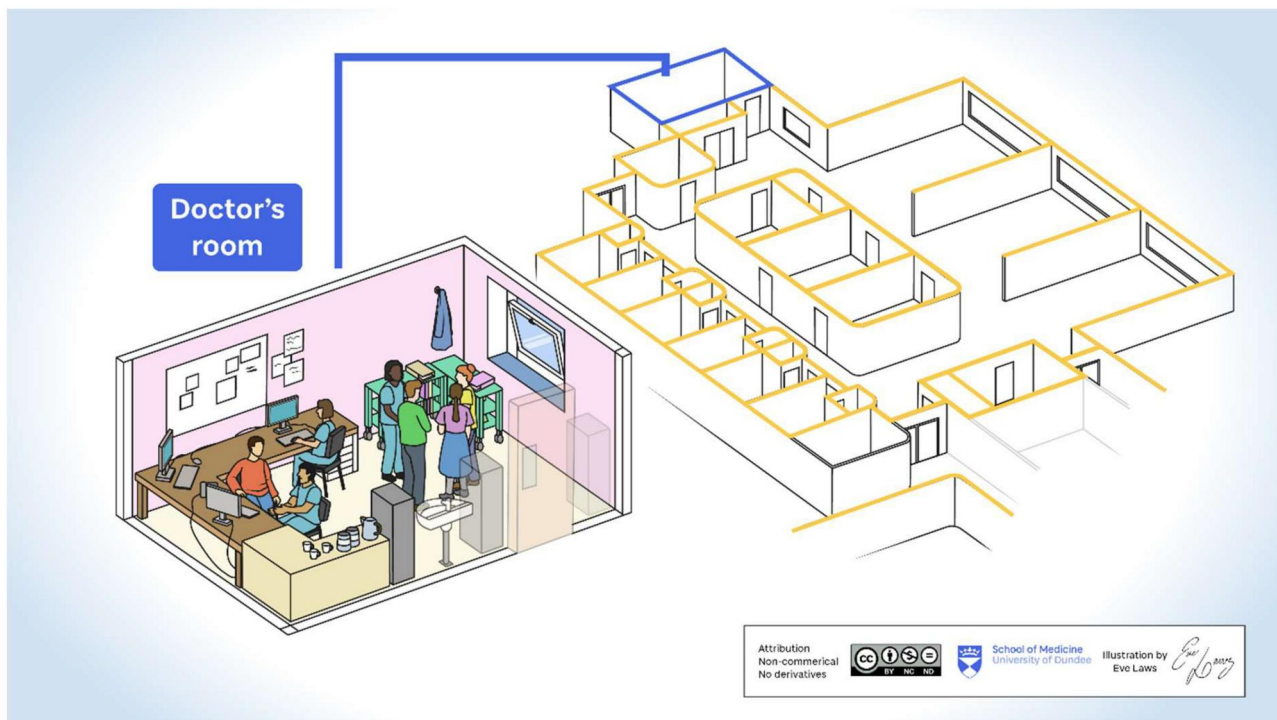


Figure 4. Doctor's room in field-site 2 illustrating a healthcare professional discussing patient case with a group of students, and doctors doing tasks (requests, referrals, discharges etc).

Table 1. Number and sources of interview data.

Participant group	Number
Medical student (MS)	12
Foundation doctor (FY)	7
Postgraduate trainee (PT)	6
Consultant supervisor (CS)	5
Other Healthcare Professionals (Ward nurse (WN), Hospital Pharmacist (HP))	4 (3WN + 1HP)
Total	34

In addition to observations and casual conversations with staff and students in the field, a total of 34 individual interviews were conducted with willing participants with whom SG had established a trusting association in the field. Table 1 provides the details of the sources of in-depth interviews conducted to clarify issues arising during observations.

Findings presented here relate to themes regarding the spatial elements in the field and the resulting implications for medical students' teaching and learning. Extensive sections of participant transcripts are presented with each theme to illustrate the connection between the data and the inferences. Certain words in the participant quotations are replaced by XXX to protect identity of the clinical sites or participants under discussion.

Theme 1: Spatial attributes in the clinical workplace can enable or constrain teaching and learning opportunities

Dedicated physical space for the medical staff in the observed ward appeared inadequate and unsuitable for doctors and medical students to interact in work-related setting. These interactions involve discussing patient cases, often at length, and the cramped doctor's room in field-site 1 restricted meaningful interpersonal interactions, and

the associated learning that might have taken place otherwise.

MS6: ... the room is so tiny (doctor's room in field-site 1), I feel wrong staying here. They are meant to be working here. I do not want to disturb anyone or cause unnecessary inconvenience ...

FY2: ... We tend to send the students away as there isn't much room here, [.] there is no point in them staying, [.] I would ask them to go away. They can't stick around for too long, they get in the way.

The senior clinicians on the ward expressed their frustrations at the lack of a suitable space for clinical teaching in the ward.

CS2: If I have to discuss a case or a drug chart with students, I struggle to find a comfortable spot. I can't troop a group of students off to the library block, find a room, teach what I need to and then troop them back. Nobody is going to do that. So, we develop bad habits. We struggle a few times, and then we give up. The teaching just drops off ...

The ward footprint of the field-site 1 rendered clinical teaching inconvenient and awkward for both students and the supervisors. Discussions regarding patients in relation to their symptoms, investigations and treatment options comprise a valuable aspect of clinical learning and can occur in the ward environment opportunistically. Figure 5 highlights the two narrow corridors where informal teaching or case discussions took place routinely in the ward. The small size of the doctor's room led to often confidential discussions happening in the corridors. Clinician supervisors expressed their concerns regarding role-modelling negative behaviour, since the lack of a suitable area led them to have discussions with patients' relatives in the corridors, which they would have preferred to do in a more private setting.

CS1: .it is bad, far from satisfactory. Facilities for clinical teaching are so limited. The biggest hurdle is the physical

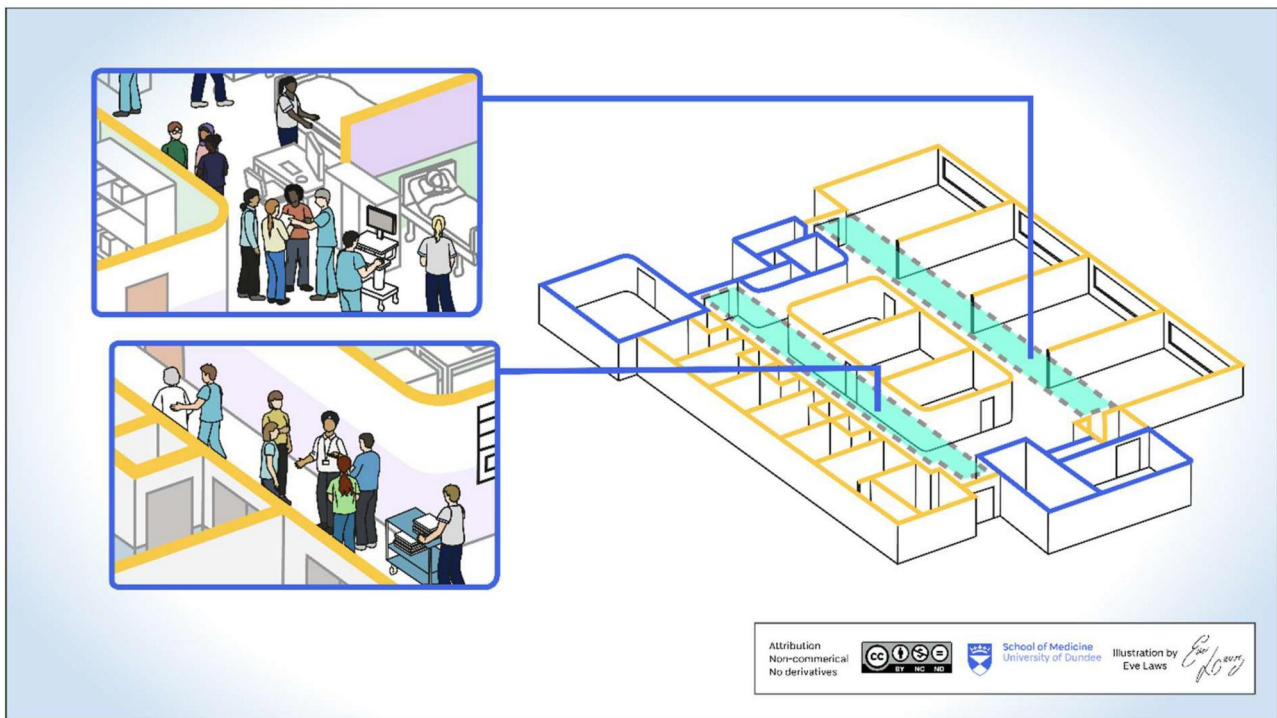


Figure 5. The corridors outside the patient bays, where informal teaching or case discussions take place.

space. There is no room to talk to students, we talk to them in the corridor!

However, field-site 2 hosted a bigger and well-positioned doctor's room where several opportunistic teaching and learning activities were facilitated. On several occasions, the ethnographer noted medical students in this room, who were seen studying patient notes, interacting with FY doctors, or discussing cases and procedures with postgraduate trainees (see Figure 4). The medical student on placements in field-site 2 alluded to the role of material things with respect to the doctor's room here, and how it was conducive to the informal teaching and learning in the ward.

MS11: This ward (field-site2) is definitely a good space because we can accommodate and talk about cases and the management of patients. And there's enough space for bags, there's enough seats as well. It is way better than my last several placements.

Figure 4 illustrates the doctor's room in field-site 2 with several students and staff at work in a relaxed setting. On several occasions during the field visits, the ethnographer observed supportive peer interactions between medical students and FY doctors. For example, once an FY doctor was seen giving detailed feedback to a medical student on a skills procedure that they had performed under supervised conditions. On another occasion, two final year medical students were seen being tutored by an FY doctor regarding managing difficult patient consultations. During fieldwork in field-site 2, the ethnographer also observed junior doctors advising medical students regarding their upcoming examination preparation and portfolio building in a reassuring manner.

In addition to peer interactions and learning, there were opportunities for interprofessional learning in the second field-site, as indicated by a healthcare staff below.

HP: I talked over the discharge script with these two medical students answering their questions regarding specific medicines. Yesterday also I had a discussion at length with a

medical student about a patient's prescription. There is room here in this ward, in some of the others it can be very awkward and in the way!

During visits to field-site 2, the ethnographer got a sense of cordial interprofessional teamworking when she observed the ward nurse and FY doctor having confidential discussions in the doctor's room, regarding a patient who they were concerned was faking pain. Such relaxed interprofessional interactions were not witnessed in field-site 1 and were not realistically possible unless staff were whispering.

WN3: It is good to have a room like this (field-site 2) because there is a bit more privacy, and you can have a better discussion about things

Theme 2: Inadequate spaces affecting students' and junior doctors' sense of being valued

Figure 3 illustrates the doctor's room in field-site 1 with doctors and students discussing cases and doing patient-care related tasks (requests, referrals, discharges etc). SG noted during fieldwork that the FY doctors appeared anxious while interacting with anyone in this room, whether it was the students, patient's relatives, the ethnographer or the senior doctors. They seemed guarded while communicating, less welcoming, and conscious of the fact that they could be overheard. The physical properties of the doctors' room, such as its inadequate size created a feeling of being undervalued amongst the students and junior doctors as indicated by the participants' quotation below.

MS3: In general, I do think across the hospital, doctor's bases are probably one of the most neglected spaces. There's always a dedicated room for the nurses to go through for breaks, there's the Charge Nurse office, and then there's the nurses' office in all the wards. Whereas the doctors. just kind of fit wherever.

PT2: There is no decent place for us, you might as well put us next to the toilet! It's disrespectful of doctors, why don't we need an office?

PT1: It's not a room, it's a Cave.sort of! We feel undervalued! Every time we raise it, we get an email saying – we appreciate your work, we appreciate the conditions in which you work. and nothing happens!

The junior doctors complained of the constant disturbance they faced owing to the doctor's room (field-site 1) being exposed to the ward and open to distractions; this appeared to adversely affect their working.

FY2: You know how we have that little medical cubbyhole, It isn't an office. No. So inevitably we get harassed quite a lot. Normally when you're in an office, someone comes in, they knock at the door, and they wait. But because we don't really have a door or a barrier, the nurse or a relative will just walk up and start speaking.

FY5: There's no privacy for us, and there's no privacy for the patients either, because potentially their name is getting bandied about. You are sort of stuck when you need to have sometimes long or like tough telephonic conversations in full view of the ward.

Students on placements in field-site 1 noted the not so positive working conditions owing to the constricted and inadequate physical space, which impacted their overall experience.

MS2: We don't have a place to store our things safely. Yesterday, my pen ran out. My bag was in the medical school, and I had to walk back there to get a spare pen.

MS3: That isn't a nice work environment to be in and even as a student, I feel like I want to leave.

An additional impact of overcrowding owing to limited physical space was influence on each other's mood due to close proximity, as described by a postgraduate trainee doctor below.

PT2: It doesn't help the mood at all. Because if one person is having a bad day, we all feel it. If one person is annoyed, everyone gets irritated. And it's very clear when one person isn't having a good day, it affects the team because you are so together!

Theme 3: Short clinical rotations influencing a sense of ownership of doctors' spaces

Medical students have clinical placements that vary from a week to eight weeks traditionally, depending on the speciality or the block. Staff frequently refer to them as 'a temporary guest in the ward' or 'a visitor' owing to their short stay. Likewise, foundation doctors have a rotational system of training which may span two to four months and may be shorter on occasions. Some foundation doctors are not attached to a fixed ward and may follow a rota comprising of several short placements across different wards. Hence, both students and junior (FY) doctors are on the ward for a relatively short period, and the transitory nature of their posting appeared to reduce their sense of legitimacy and ownership in the clinical environment. This is reflected in the participants' transcript below.

MS4: I think with the medical students, because we are only in one place for such a short period of time, it is very easy to just say it doesn't matter because I'll be gone in a week and I can just ignore things.

Short placements in the workplace appeared to be associated with a resigned attitude of junior doctors, and lack

of motivation to modify their working environment. Their disinterest in exercising agency to pursue authentic membership in the healthcare team and demand suitable working spaces in the wards is notable below.

FY1: ...we always get the worst spaces, but because we are moving so much, we don't want to get into a fight.

FY2: I will be finishing soon, in a couple of weeks. It's not worth the fight!

Theme 4: Contested nature of space in the clinical learning environment

Physical spaces are limited in the clinical areas, and they appear to be sought after by different stakeholders for different purposes. For example, the area marked 'staff room' in Figure 1 happened to be one such site in the field-site 1 for which both the nursing and the medical staff assert their claims, leading to interprofessional tensions on occasions. The ethnographer noted during fieldwork, that the staff room was being used by the nursing staff for their breaks. However, the senior charge nurse acknowledged that was not the appropriate purpose of that space.

WN1: It is not ideal, anyone who is on break whether doctor or nurse should be going out of the ward, to the canteen and not using the staff room at the back. That's not what that space is for really. There is a lot to fix here in context of space.

The ward nurse also confirmed the unsuitable positioning of the doctor's room in the ward, which led to frequent complaints from the patients, owing to the unintentional disturbance generated by FY doctors' routine activities in the room.

WN2: We get lots of complaints from patients regarding the light from the doctor's room disturbing them at night. And sometimes the noise also when doctors are talking on the phone, say in relation to a referral or to a senior. The patients in bay 4 (field-site 1) are disturbed.

The consultant supervisors acknowledged the adversities that junior doctors and medical students face on account of lack of adequate space for them in the ward (field-site 1).

CS3: Certainly the layout in Ward [field-site 1] could be much better. The nurses have taken one room that in some wards is medical.

In a similar vein, the area marked 'demonstration room' in Figure 1 and amplified in Figure 6 is another site at the centre of competing clinical and educational interests in the clinical environment. It is a boundary space between two adjacent wards and a shared space between the University and the NHS.

CS2: ... the Demo room is a University space, but it is used for all kinds of NHS activities [...] we have various MDT (multidisciplinary team) meetings in the demo room or management meetings, sometimes it gets booked for NHS interviews.

The ethnographer noted during fieldwork that the demonstration room rarely got used for any educational purposes, despite the understanding amongst the staff that the room was to be prioritised for teaching. This was perhaps related to much of the clinical teaching being ad hoc, therefore no prior booking of the demonstration room was

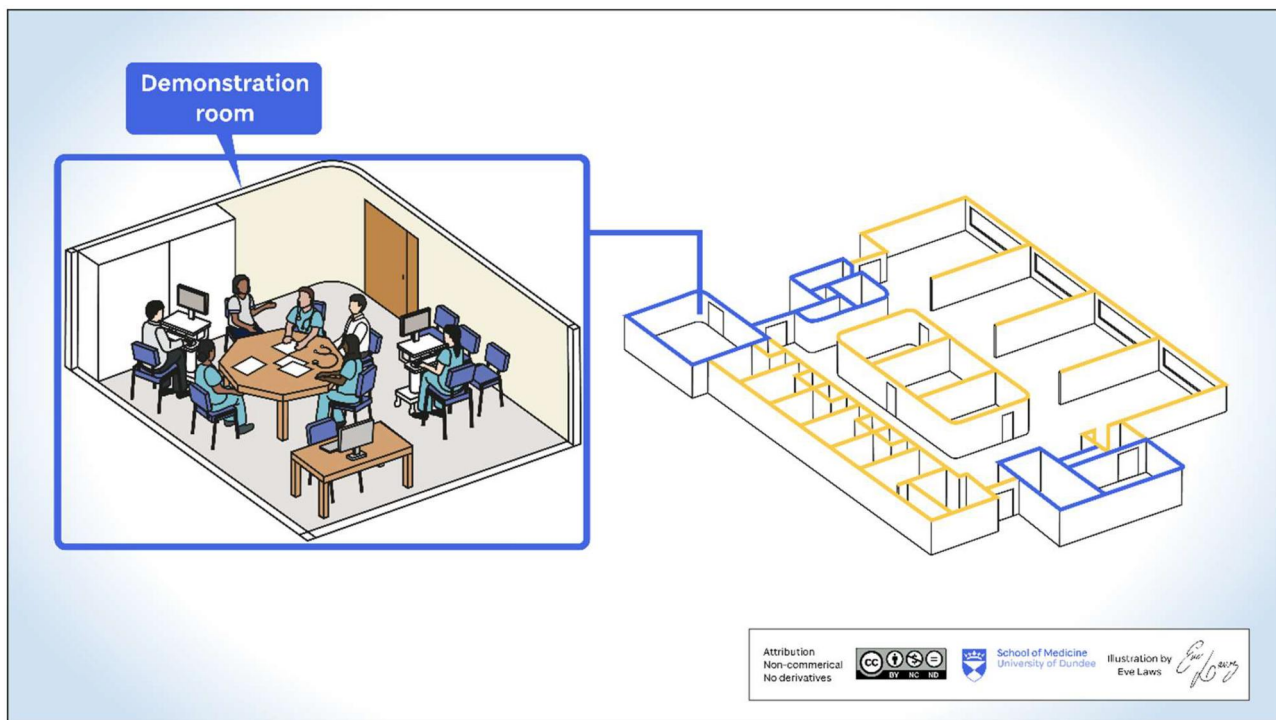


Figure 6. Demonstration room shared by 2 adjacent wards showing a multidisciplinary clinical team meeting in progress.

possible for this kind of opportunistic teaching. However, it is this unplanned clinical teaching in the ward which is characteristic and valuable for students' preparation for professional practice.

PT2: All patient records are now electronic, and we can't give access to students per se. But if there is a convenient space, we can have students see it with us, discuss things on patient's notes or charts before logging off. But there is absolutely no room for that. The demo room is rarely available, and the doctors' room is too small.

Students and doctors reported that doctor's room in the majority of the hospital wards were inadequate, similar to field-site 1. The one in field-site 2 happened to be an outlier in this regard; perhaps owing to the fact that this ward catered to amputees and hence had undergone refurbishment with the aim of increasing the overall space to allow free wheelchair access all around.

FY4: I am lucky here (field-site 2), but every ward I have been in before, the room for us has been restricting almost. I was on XX before, and I don't know if you've been there? It's a little cupboard, I would say even worse than XX (field-site 1). My friend is in XX, and that is no better!

Discussion

This paper presents findings from an ethnographic exploration of the clinical setting, with a specific focus on the spatial elements and its bearings on medical students' learning. Inductive data from observations and interviews revealed the entanglement of space with learning, and students' and doctors' overall experience of the clinical learning environment. The study draws attention to a relative disregard for the doctors' spaces and presents a complex picture of contested ownership and interprofessional tensions linked to spatial attributes.

The research findings reveal how the inadequate doctors' space in the hospital constrain teaching and learning

activities in one of the selected wards. Creating spaces that can be sustainably shared by both clinical and educational activities is challenging. It is not uncommon for educational spaces in the healthcare areas to be converted into offices, meeting space or storerooms, similar to the demonstration room in our study (Nordquist et al. 2019). Likewise, clinical educational activities are known to take place in patient rooms, nursing stations and outpatient clinics. However, medical students and clinical supervisors both encounter barriers, and the conditions under which these teaching and learning activities take place are frequently, far from ideal. An earlier ethnographic study from Australia reported how the 'cramped space' in the hospital wards restricted students' clinical encounters and made confidential conversations impossible (Barrett et al. 2017). The authors discuss the difficult physical and social terrain of a large tertiary hospital, leading to some students stumbling and retreating; the study highlights the need for pedagogical and affective support to ensure a successful clerkship experience for students. However, development of supportive associations is contingent on physical spaces as suggested by the students' and doctors' experiences in the second field-site in our study. The doctor's room in field-site 2 appears like Nodding's 'dwelling place' that supports frequent and safe interactions as opposed to the one in field-site 1, which appeared to be a place for transaction (Balmer et al. 2016). It must be noted however, that the field-site 2 is an exception rather than the norm as confirmed by our participants. This is further detailed in the afore-mentioned theme four.

The junior doctors in our study displayed stress and feelings of being watched in the small doorless doctor's room in field-site 1, appearing guarded in conversations, and fearful of being overheard. Researchers have previously reported students feeling anxious and under surveillance, owing to close proximity to clinical staff and patients (Hawick et al. 2018). There is a justified need for suitable

spaces in the clinical setting which afford sufficient privacy for students and doctors to feel safe whilst engaging in team interactions and discussions. The value of doctors' spaces in the hospital such as on-call rooms and purpose built rest facilities has been acknowledged in the literature as improving working conditions and mental wellbeing (Rimmer 2019). However, similar to our study findings, the literature notes that doctors' spaces are often overlooked and undervalued (Uys et al. 2023). We attempt to sketch the interlinked socio-material and affective dimensions of participants' lived experience of the clinical learning environment. Unpacking these latent elements of healthcare education that catalyse learning is essential to realise the full potential of work-based learning (Gupta et al. 2023).

Reviewing the students and doctors' experiences through the ANT and SCT framework highlights space as an important actor in the hidden curriculum, shedding light on the mutually transformative effect of space and human factors. The limited and exposed space in field-site 1 negatively affects the human actors' learning and experience, and simultaneously the lack of human (students and doctors') ownership and agency is somewhat restrictive towards development of appropriate and fit-for-purpose doctors' spaces in the clinical setting. The sociomaterial contingencies of work-based learning is in turn linked to the rotational nature of clerkships, which inhibits the human actors from investing in the material aspects of work-based learning environment. The implications of the temporal dimension of placements need to be underlined, given that interprofessional learning and team-working, requires both space and time for free and relaxed discussions (Gupta and Howden 2022). Recent research in the UK context projects how the objective of supporting interprofessional education in a health-care education centre, was not translated into practice owing to students experiencing tensions and isolation in the environment (Shah et al. 2021). A shift in pedagogy through operationalisation of well-meaning learning spaces requires privileging the temporal, sociomaterial and affective components of lived spaces (Gupta et al. 2023).

It is established in existing literature that frequent transitions lead to a 'lack of dwell time' and undermines relationship building (Bernabeo et al. 2011; Brown et al. 2021). The present study adds that alongside negatively impacting relationship development, the transient nature of clinical rotations in the ward prevented development of any sense of legitimacy within the team for students and junior doctors. The medical students get referred to as 'temporary guest' or 'a visitor' in the ward. Unsurprisingly, the participants display a lack of ownership regarding the doctors' spaces, owing to short rotations. On the contrary, the senior and permanent members of the medical team express an interest and investment in the spatial elements of the ward. Continuous longitudinality is known to foster reciprocal relationships between medical students and diverse healthcare staff during clerkships (Gupta and Howden 2021). It is worth considering if longer placements could reduce the interprofessional tensions in relation to physical spaces in the ward areas through formation of mutually caring relationships amongst students and diverse healthcare professionals.

The transferability of the study findings is limited by the fact that it was conducted in two clinical sites from one

institution. It may be argued that the selected wards may not be representative of all clinical learning settings. For example, space is configured differently in a primary care setting and the research findings might not apply to those. Future research could explore the spatial dimensions in primary care contexts and their implications for student learning. There are many aspects of a given space (apart from size) that can likely influence educational experiences, these being the furniture, computer stations, presence or absence of a door and such like. This study may be considered a prompt for future investigators to undertake a more comprehensive analysis of the material elements in a space and their educational implications. Additionally, the interview data could be subject to potential bias however, the use of observations and the interviews sourced from a range of participants seek to support the credibility of data. The ethnographic approach was a strength of the study, rendering modesty and openness required for exploring spatial aspects of the ward environment, as was the successful engagement of multiple stakeholders giving a holistic perspective. Furthermore, employing a non-purist and hybrid framework gave voice to 'space' which does not speak for itself, while maintaining the focus on the social learning which is characteristic of work-based learning. In future, large-scale studies involving multiple field-sites and/or different clinical environments can further enhance our understanding of the sociomaterial contingencies of work-based learning.

Conclusion

This paper concludes with the projection that space (or the lack of it) powerfully impacts on the students' and doctors' learning and experience of the clinical learning environment. The 'rich descriptions' provided shed light on the everyday lived realities of healthcare professionals and students, and the taken-for-granted sociomaterial perspectives of the clinical setting. The present study elevates the status of space from a backdrop for human action to being a key agent in students' learning and well-being. The research highlights that successful work-based learning arrangements need to focus beyond workforce and include clear conceptualisations of and investment in educational spaces when considering capacity and funding for teaching.

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