

Improving transitions between clinical placements

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Abstract

Background: Students regularly transition between clinical learning environments as they rotate through their clinical placements. These transitions are stressful for learners, as they must navigate unfamiliar policies, people and physical spaces. It is important to reduce cognitive overload at the start of each placement through appropriate inductions. Our governance processes found there was significant variation between induction processes at our affiliated teaching-hospital sites: our aim was to optimise and standardise these.

Approach: We opted for induction websites for each of our affiliated hospital sites, as these could be dynamically updated and quality assured. Our websites were informed by a conceptual framework of the clinical learning environment and the theory of sociomateriality. We co-produced them with students and other stakeholders through iterative evaluation and improvement cycles.

Evaluation: To elicit end-user analysis, we conducted three focus groups with 19 students. We used the technology acceptance model to inform our topic guide and coding categories. Students reported that the websites were useful, easy to use, and fulfilled a significant unmet need.

Implications: Induction websites can be optimised through the involvement of a range of stakeholders and the application of theory. They can be pushed to students before each new placement and used to scaffold in-person inductions. Further research is needed to explore the wider impacts of improved site inductions on participation and engagement with clinical learning opportunities and on student satisfaction and experience.

1 | INTRODUCTION

Transitions within medical education are dynamic processes in which individuals move from one set of circumstances to another.¹ Major transitions include the change from 'pre-clinical' classroom environment to the 'clinical' patient-focused environment, from student to doctor, and from junior doctor to consultant.^{1,2} These major transitions happen infrequently; a more regular occurrence is the transition between clinical learning environments (CLEs). In the later years of their degrees, students rotate through a series of clinical

placements, in order to experience a diversity and breadth of practice necessary to develop specialty-specific expertise.³ For example, at our institution, fifth-year students rotate through 11 clinical placements, in specialties ranging from obstetrics and gynaecology to psychiatry.⁴

Our aim was to standardise and optimise clinical placement inductions to reduce the cognitive load and educational 'dead space' associated with moving between CLEs. Each CLE is a unique, complex and dynamic interplay of personal, social, organisational and material factors,⁵ and each requires acclimatisation.^{1,6} An analogy might be a

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child moving school, or consultant starting work at a new hospital—they have the same role, but within a different environment. The change in environment places an increased cognitive burden on students. They need to understand who is who, where things are and how things are done locally before they can fully engage in the new CLE.⁷ That is, there is likely to be educational dead-space at the beginning of each rotation whilst students navigate unfamiliar people, roles, policies, procedures, timetables, systems and physical spaces.^{8,9} The importance of these situated stressors has been fore fronted recently in the medical education literature through the theory of sociomateriality. Those ‘thinking sociomaterially’¹⁰ acknowledge rather than deny ‘the constitutive entanglement of the social and the material in everyday life’.¹¹

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A good induction (also called orientation) can help overcome some of these situated stressors.^{8,12,13} We heard this consistently and repeatedly from students through our governance processes at affiliated teaching hospital sites. We also heard that inductions were of variable quality between hospital sites. We sought to improve quality by identifying and then providing information that students sought regardless of site.

2 | APPROACH

We opted for induction websites for each of our affiliated hospital sites, with the intention that these would support and augment existing induction processes. Websites were chosen as they could be dynamically updated and quality assured; private and secure as they would be situated within our virtual learning environment; and

accessible, being available to students before, during and after placements. We felt that insisting on standardisation to the point of rigidity was neither feasible nor desirable, given the inherent variation between hospital sites, nor would websites in isolation provide the necessary social or human connection to a new site, hence our desire to retain live inductions.

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We adopted a participatory, theory-driven approach involving iterative evaluation and improvement cycles. The website content and design was grounded in the theory of sociomateriality⁷ and Gruppen and colleagues’ conceptualisation of the CLE⁵ (Figure 1). Our initial co-design process involved a range of stakeholders, including eight members of our digital team, two students, six faculty and four members of the undergraduate medical education team at a partner hospital known for exemplary inductions. A prototype website was circulated and iteratively improved until all were satisfied, at which point it was launched live to students.

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We then started to build websites for our other teaching hospitals (15 in total). In parallel, we conducted three post-implementation focus groups with six, nine and four students respectively to elicit end-user feedback. We used the technology acceptance model (TAM)

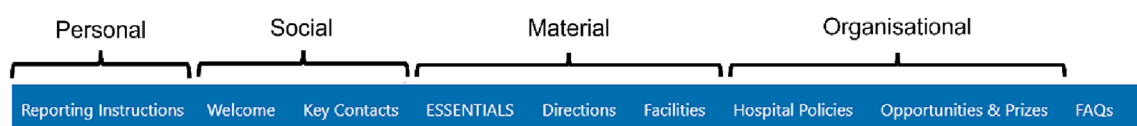


FIGURE 1 Website headings informed by Gruppen et al.'s (2019) conceptualisation of the clinical learning environment (CLE).⁵

to inform our topic guide and coding categories, which states that users will adopt a new technology if they find it useful and easy to use.¹⁴ The TAM is well validated and, despite some criticisms,¹⁵ continues to be the leading model for technology acceptance.¹⁶ We preferred it over subsequent developments for its simplicity. Feedback was audio-recorded, transcribed verbatim and thematically analysed. We adopted a deductive approach, coding all relevant content and grouping codes into the categories defined by the TAM.¹⁷ We used the feedback to iteratively improve and modify the design and content of the websites, and to inform our evaluation, which is ongoing and will include data analytics and quality assurance of website content. We received ethical approval through the Education Ethics Review Process of Imperial College London (EERP2122-074).

2.1 | Pre-implementation stakeholder perspectives

Content that was suggested by stakeholders during the co-design process included often neglected but important material information such as locker codes, locations of microwaves, electronic access arrangements and prayer facilities, amongst others. Our Generation Z students were clear that the website should be visually attractive, easy to use, and with photographs and videos (for example, walkthroughs and virtual tours). To provide this, we engaged a professional

photographer and videographer and obtained permissions from press teams at our affiliated hospitals. Local education teams were keen to include site policies, such as dress code and absence reporting. Faculty suggested bespoke webpages relating to welfare, raising concerns and needlestick injuries, which were areas of focus for the medical school. End-user feedback focused on the usability of the website, for example, students wanted the information about lockers to be made more prominent and suggested locating this information in an 'essentials' section. The results of these co-production efforts have now been included into our induction websites (Figures 2 and 3).

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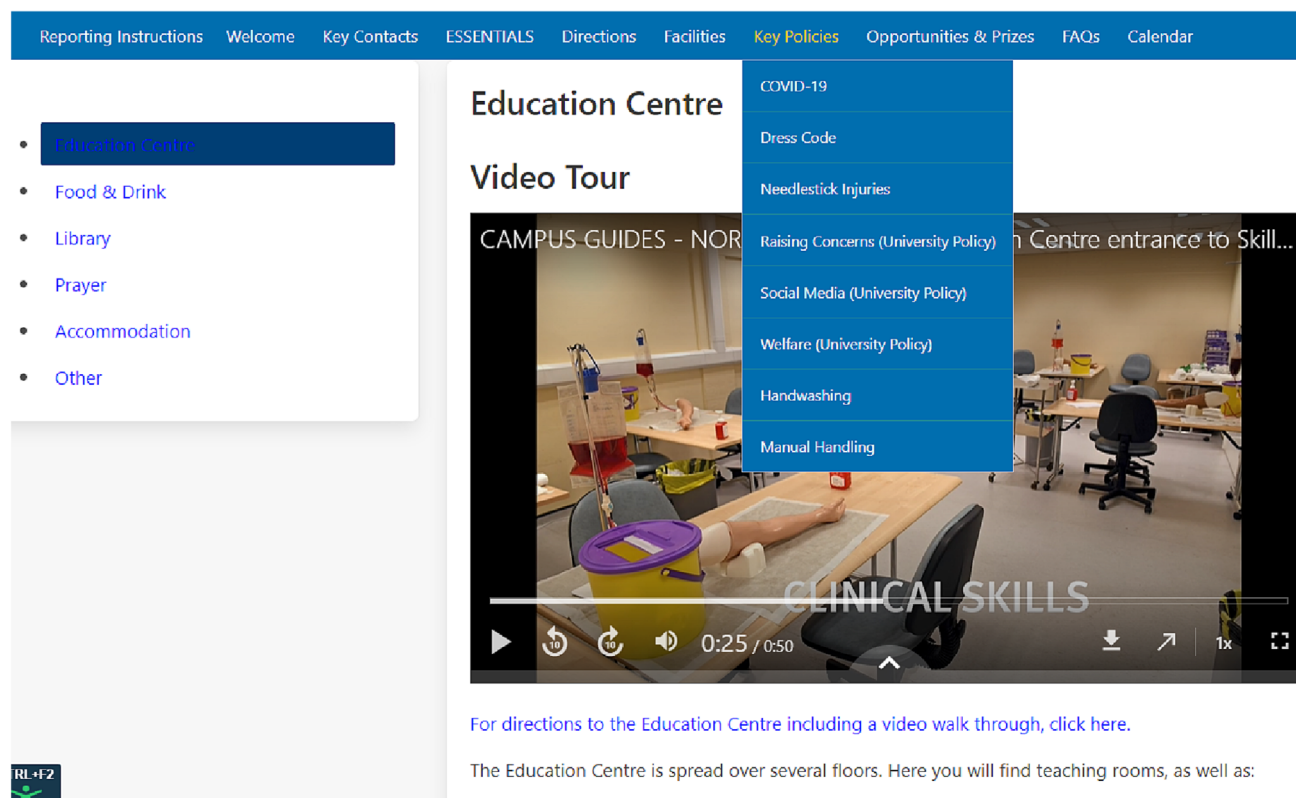


FIGURE 2 A screenshot from one of the hospital websites showing one of the facilities pages.

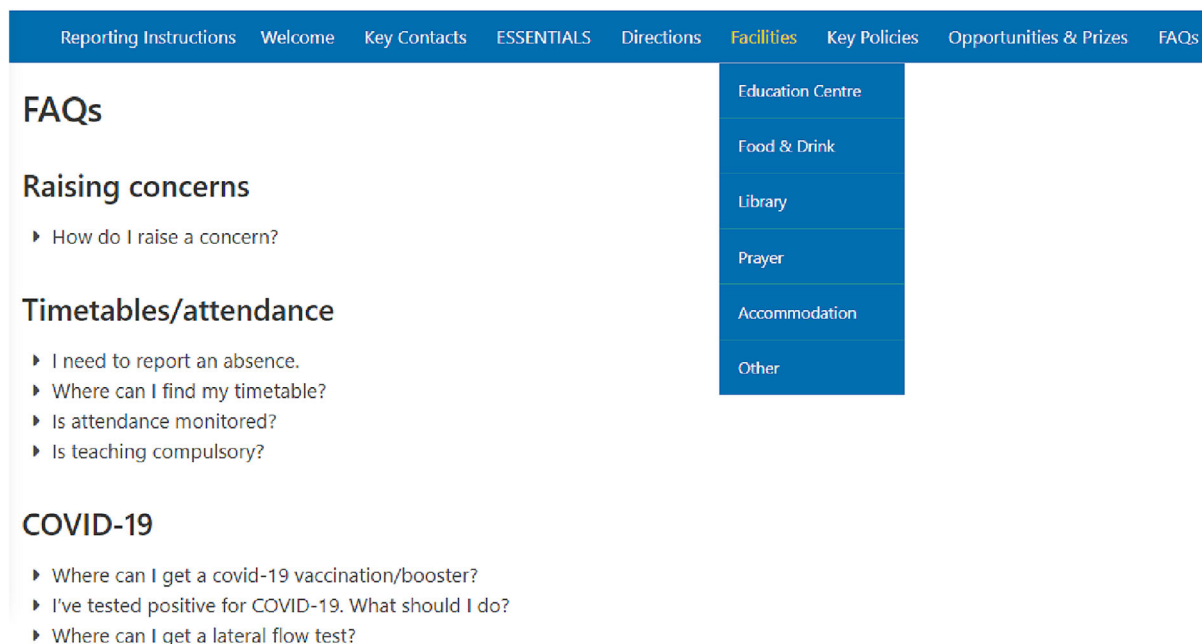


FIGURE 3 A screenshot from the hospital websites showing the frequently asked questions (FAQ) page.

3 | EVALUATION

3.1 | Post-implementation end-user perspectives

End-user feedback relating to perceived utility is presented in Table 1 and perceived ease-of-use in Table 2. Overall, participants said the websites fulfilled a significant unmet need.

‘Yeah, I think I’d click on [the website] if I hadn’t been to the hospital before, because it’s quite scary going to a new hospital where you don’t know where the Education Centre is or anything. So I would definitely click on the link.’

[S1, FG2]

‘Yeah, like I’m at [hospital] for the first time in September. If there was something like this for that then I definitely would have a look at it.’

[S7, FG2]

Overall, I can’t really pick out the downsides to having a digital guide to the place.
[S3, FG3]

3.2 | Perceived usefulness

Students reported that the websites were useful as they provided valuable, relevant information that helped them feel supported before and during their placement (Table 1).

3.3 | Perceived ease of use

Students reported that the websites were easy to use as they were well organised; intuitive to navigate; enhanced by photographs and videos; and readily accessible (Table 2).

3.4 | Reflection

Significant resources were required to create and sustain the websites. The majority were required during the set-up period. These included project leadership and management, website design, content and videography. Resource burden to the partner hospital sites was mitigated by having the set-up led and financed by the university which was able to absorb the tasks within current staffing. We found it important to have a clinical teaching fellow lead the set-up phase as they had lived experience of clinical placement transitions, as well as good communication and problem-solving skills. However, as the project moved on to the maintenance phase, responsibility was handed back to hospital’s undergraduate education administrators, who were supported and trained by the university to update the content and

TABLE 1 Quotes from students regarding the perceived usefulness of the websites.

Needing information before a placement	'I'm going to [hospital] in a few months, but I know nothing about the layout of the place. If I had, like, a page, which I could use, to get basically get familiar with the hospital, I think it'd just be really convenient.' [S3, FG3]
Needing information during a placement	'I think it is useful as like a point of reference. If you are stuck with something, or you feel like there's something that you're not sure about.' [S4, FG3]
Providing new information	'So, the headscarf like, especially when it's talking about like scrubbing in and things. That was really useful ... if I'd read it beforehand, it would have been good.' [S8, FG2]
Comments on specific sections	'I think the hospital maps are really good because we kept getting lost. And you can do a virtual tour.' [S1, FG2] 'I think the hospital policies bit is really good. It's really thorough [Moderator: any ones in particular?] I think the raising concerns one probably. And probably the needlestick injuries one. Those two I think would probably be like the most relevant as well for people. And it's probably one of those that unless you're aware of where to find the information, you're probably just gonna let it slide because it's too much effort to find the information, if that makes sense.' [S7, FG2]
Accessing support	'Yeah, I think this is really, really decent. Definitely more support than you get from other [placements without websites], as far as I can tell ... at least just to, like, reassure me that if I'm struggling with something, I can come here and find it, find any answer I need.' [S4, FG3]

TABLE 2 Quotes from students regarding the perceived ease-of-use of the websites.

Better than searching through email trails	'I think from first and second year, we kind of got all of this information in emails and things. But this is much better, much more concise way of doing it.' [S2, FG3] 'It's like opening up separate files. Sometimes, you know, they might not work or you have to download them or something. Just extra steps. But yeah, something more centralised. Like, obviously your site. Yeah, be easier.' [S3, FG2]
Not needing to remember induction information	'But it's not very accessible information, this [induction] lecture, you're not really paying attention ... if the placement was like say, four to eight weeks, you're gonna forget where stuff is, so to have something like this is very useful.' [S3, FG3] 'having it all in like a central place that you can refer back to, I think that's really useful.' [S4, FG3]
Liking visual information	'I like the pictures.' [S2, FG1] 'I think the photos and video tours are really helpful.' [S5, FG2]
Finding the website format navigable	'Everything was like separated really nicely. And like easy to find, which was useful.' [S3, FG1] 'It's not like too overloaded' [S1, FG3] 'It also works well on mobile, which is good.' [S3, FG3]

were provided with step-by-step video tutorials. However, in practice, we found that some also drew on the technological expertise of local clinical teaching fellows. We found that feeding the students' positive comments back helped motivate administrators to change their working practices and remain engaged with the websites.

Other potential strategies for mitigating resource requirements include prioritising hospitals with large numbers of students and spreading the costs with other multiprofessional providers of healthcare education who may also benefit from the resources. In

our case, it was considered a worthy investment by the university considering the potential impacts on student experience and satisfaction.

So far, the theoretical risk that the websites might supplant rather than augment existing induction processes has not happened. Instead, currently, they are underutilised unless specifically emphasised during live inductions. This emphasises the social and environmental aspects of technological uptake.¹⁵ More work is required to ensure students make best use of and benefit from them.

4 | IMPLICATIONS

- Transitioning between learning environments can be stressful for learners. It is important to reduce cognitive overload at the start of each placement through appropriate inductions.
- Induction websites may improve this transition. They can be pushed to students before each new placement and used to scaffold in-person inductions. Data from our focus groups suggests that students found the websites useful, easy to use and fulfilled a significant unmet need.
- Websites can be optimised through the involvement of a range of stakeholders and the application of theory, in our case sociomateriality and a conceptual framework of the clinical learning environment.
- The most significant barrier to implementation is the resource required. We suggest strategies to minimise this, including only building websites for hospitals that host a significant proportion of students and/or coordinating with other local multiprofessional providers of healthcare education.
- The next phase of our evaluation will focus on student usage and quality assurance of content. To do so, we will analyse back-end website data and deploy online surveys.
- Further research is needed to explore the wider impacts of improved site inductions on participation and engagement with clinical learning opportunities and on student satisfaction and experience.

AUTHOR CONTRIBUTIONS

Yasmine Young: Conceptualization; data curation; formal analysis; investigation; methodology; project administration; visualization; writing—original draft; writing—review and editing. **Kathleen Leedham-Green:** Data curation; formal analysis; methodology; writing—original draft; writing—review and editing. **James Jensen-Martin:** Conceptualization; supervision; writing—review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors report there are no competing interests to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Ethical approval granted by the Education Ethics Review Process team, Imperial College London on 7 June 2022, EERP2122-074.

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