



There's power in the community: a sociomaterial analysis of university learning spaces

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Abstract

Internationally, the significance of the relationship between the university environment and the student experience is well-documented. In response, UK university leaders have driven forward policies that focus on estates' expansion and regeneration. The restrictions necessitated by the COVID-19 pandemic presented an opportunity to explore questions around the importance of the materiality of campus and its impact on the student experience. This case study examines students' experiences over time within a post-1992 UK university during the 2020/2021 academic year and makes a tri-fold contribution. First, it explores how restrictions placed on learning spaces can foreground the relationship(s) between space and learning practice. Second, through adopting a sociomateriality perspective, the paper examines students' reactions to the top-down approach taken to Higher Education (HE) policymaking, and the potential for exposing manifestations of power within the student experience. Third, the paper illustrates how photovoice methodology can encourage reflections on the impact of materiality on the student experience. The findings reveal two principal themes: power dynamics and community participation. The authors make recommendations for university leaders to adopt a community-first, co-creation approach towards future policymaking that enables meaningful dialogue with students and educators and drives forward sustainable, inclusive change.

Keywords Sociomateriality · Learning spaces · Community · Higher education · Remote learning

Introduction and context

The significance of the relationship between the university environment and the student experience is well-documented, with university campuses central to the development of student communities. In what is viewed as an important transition into adulthood, many students traditionally, and temporarily, move into towns and cities around campus to engage

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with their university studies. The topographical student community or ‘studentland’ has traditionally held a distinctive position within UK communities (Holdsworth, 2009), and continues to be marketed to prospective students as a central element of their experience (Smith & Holt, 2007). Correspondingly, students who commute to campus have reported difficulties in building peer relationships and expressed feelings that they were ‘missing out on the full university experience’ (see, for example, Stalmirska & Mellon, 2022, p. 6). Furthermore, there is evidence that university campus spaces can support student belonging (Samura, 2016) and facilitate students’ sense of place attachment towards their universities (McLane & Kozinets, 2019). As such, ‘campus design has become a major avenue for institutional branding, marketing, recruiting, and retention’ (McLane & Kozinets, 2019, p. 79), with significant estates investment (Downie, 2005), across the Higher Education (HE) sector.

Despite the evidence around the impact on the broader student experience, Temple (2008) posited that the relationship between campus spaces and learning practice, including the influence of community engagement, specialist teaching spaces, and technological advancements, has been historically excluded from discussions about campus design. Since then, the development of learning spaces as a field of study has explicated the significance of space on learning and teaching practice, for example in terms of instructor behaviour and pedagogical design (Brooks, 2012); providing sensory stimuli for supporting independent study and companion study (Cox, 2018) and the increased presence and contribution of professional services staff within learning spaces (Graham, 2012). Consequently, the restrictions necessitated by the COVID-19 pandemic presented an opportunity to explore questions around the importance of the materiality of campus and its impact on the student learning experience.

In 2020, and in line with international events, the UK Government instructed universities to switch to remote delivery as part of wider national lockdown restrictions (Universities UK, 2020). Forced from the campus environment, staff and students had opportunities to reflect on the entanglement between their practice (whether work or study), and physical campus spaces. This paper makes a tri-fold contribution to the literature on learning spaces. First, it explores how the aforementioned restrictions might foreground the relationship(s) between space and studying practice.¹ Second, through adopting a sociomateriality perspective, the paper examines students’ reactions to the top-down approach taken to Higher Education (HE) policymaking and its potential for exposing manifestations of power within the student experience. Third, the paper illustrates how photovoice methodology can encourage reflections on the impact of materiality. Focusing on themes around space, the authors outline sociomaterial perspectives within the context of education and consider existing research on learning spaces and students’ learning communities, including the effects of the pandemic, before setting out the central research questions for this study.

Sociomaterial perspectives within the context of education

Described as a ‘relational place-practice’ ontology (Acton, 2017, p.1442) which involves ‘sense-making between human presence, space, physical representations, and technology’

¹ The authors use Ellis and Goodyear’s (2016) definition of ‘studying’, as opposed to ‘learning’, practice to denote the range of activities and tasks which students engage with through their learning role.)

(Lueg et al., 2023, p.456), sociomaterial perspectives encompass a variety of approaches which collectively consider the human and non-human entanglements that regulate practice (Fenwick et al., 2011). The iterative nature of practice, and the inter-relationships between social creation and artefacts over time, and within the context of the cultural and historical milieu of the university, were highly relevant contextual factors for this research. As explained by Fenwick et al.:

Learning, development and change emerges here as a unity of individual and societal, the symbolic and material, the present and the past. (2011, p. 57)

A critical tenet of sociomateriality is to shift focus away from the individual towards the acknowledgement of the macro and meso objects or artefacts which continually influence individual action, such as policy (Roth & Lee, 2007) and digitisation (Cliff et al., 2022). Spatiality theory, within the broader concept of sociomateriality, can be used to explore the development of learning spaces, their flexibilities, and the impact on student experience. In accordance with the material turn in the social sciences, universities are presented as an entangled, mobile array of people, buildings, and objects that are drawn together, in different combinations, to produce particular results, within specific places, and at identified times (Sheller & Urry, 2006). As sector-wide expansion has led to larger, and increasingly diverse, student populations, this material flux has become more apparent due to the coalescing of the cultures and backgrounds that are represented amongst students (Savin-Baden, 2008). This has resulted in increasing university and political initiatives to address inequalities between students and the foregrounding of civic engagement within university policy (University Alliance, 2016). Accordingly, Acton (2017) and Fenwick (2015) advocate for a sociomaterial analysis of learning spaces, emphasising how it can be used to understand expressions of power in education and the politics of learning.

Learning spaces

During the pandemic, students were required to switch to learning online. Within this section, the authors explore existing literature around online teaching and learning practice, and student communities.

Rejecting the ‘virtual’/‘in-person’ binary?

Conceptions of digital teaching and learning, including the terminologies used to describe them (‘virtual’ vs ‘in-person’), are that they exist within a ‘hard binary’ (Gourlay, 2021, p. 58) and are a diluted version of ‘real’, in-classroom learning (Bayne et al., 2013). Researchers reject a binary classification between in-person and virtual learning (Gourlay, 2021) in favour of exploring these different modes of delivery within the context of each other (Bayne et al., 2013). Blended learning, a combination of in-person and virtual learning which ‘makes the most effective use of both modes of study’ (Adekola et al., 2017, p 58), has been employed in a variety of ways across HE for over 20 years (Güzer & Caner, 2014). Whilst an analysis of blended learning is beyond the scope of this paper, the authors note previous research that demonstrates how students expect technological innovations within their courses (Adekola et al., 2017). Furthermore, student access to online learning materials may support independent study (Smyth et al., 2012) and the development of confidence to engage with peers (Ellis et al., 2006; Güzer & Caner, 2014). The opportunity

to explore online teaching materials independently may help to develop understanding and create space for students with diverse needs, including international students (Adekola et al., 2017). However, there is evidence that students perceive online learning to be an inferior substitute for in-person delivery, particularly when their views about quality are associated with a value-for-money outlook on university study (Adekola et al., 2017; Griffiths et al., 2021). Nevertheless, existing research presents a narrative that virtual teaching resources may relieve users from temporal, communication, and productivity barriers (Mueller & Strohmeier, 2011).

However, Gourlay (2021) rejects the idea that virtual delivery liberates participants from the embodied nature of learning, citing examples such as ‘performing’ to the screen during online classes, the physical fallibility of digital devices, and the necessity of an appropriate space in which to work, to highlight the materiality of engagement with the digital space. Similarly, Bayne et al. (2013) explore how virtual spaces, rather than being characterised by openness and democratisation, present their own inherent boundaries for participants to navigate including, for example, access to appropriate technology (Smyth et al., 2012). The development of the use of technology within education has inspired discussions around both assumed and prevailing teaching and studying practice (Ellis & Goodyear, 2016). Tietjen et al. (2021) explore the development of future learning spaces within HE. They consider learning spaces beyond the (still pervasive) fixed, place-bound, time-bound, in-person lecture and focus on the development of learning practice through increased collaboration which is ‘unbounded by time or location’ and facilitated by technology (p.18).

Given the enduring centrality of campus learning spaces to the marketed, and lived, student experience, it is unsurprising that experiences of remote delivery during COVID-19, which forced change and innovation, led to a re-consideration of student relationships to the physical campus. Across the sector, top-down governance and managerial approaches, in addition to the historical, cultural significance of traditional learning spaces, suggest that student experiences of remote delivery would be marred by feelings of apprehension and isolation. As the shift towards flexible learning spaces may be accelerated post-pandemic because of related innovations, this analysis of the student experience during remote delivery is timely.

Student learning communities

The literature demonstrates how students’ sense of community within their course structures influences a range of factors that include retention (Harris, 2006), transition (van der Zijden & Wubbels, 2023) and access to peer study support (Smith & Tinto, 2022). Pandemic-related restrictions compressed students’ abilities to develop meaningful connections and engage with the meshwork of opportunities for spatial activity that may have been previously available to them (within their homes, institutions, communities, and cities) and which could help foster a sense of community (Gordon & Lahelma, 1996). Contemporaneous research similarly revealed students’ concerns about a reduced social life (Zasina & Nowakowska, 2022) and social isolation (Burns et al., 2020). This aligns with previous studies that suggest the importance of community for developing belonging, shared values, and sense of self (Fenwick et al., 2011) and a ‘distinctive social and cultural identity’ (Smith & Holt, 2007, p. 151). However, Calhoun and Green (2015) note that online technologies can be used to support the development of student communities ‘asynchronously: anytime and anywhere, without the constraints of time, situation, or place.’ (p. 62) Other studies suggest that access to technology can facilitate mobilities, easing the occupation

of spaces without the necessity for physical movement (Sheller & Urry, 2006), illustrating the potential for students' sense of belonging to endure beyond the physical campus, if communities can flexibly connect, form, and shift. The development of peer communities for online learning courses has been cited as an important factor for creating a sense of 'belonging and support' (Farrell & Brunton, 2020, p. 17). Furthermore, there is evidence that tutors were mindful of the importance of developing learning communities during the pandemic, employing technology to keep their students connected and to support co-creation (Griffiths et al., 2022). Yet, engaging with remote delivery can still engender feelings of isolation (Phillips et al., 2021), particularly when the metaphorical (and sometimes literal) shadow of the physical campus looms large. Although Bayne et al.'s (2013) study occurred before the social restrictions of the pandemic, their findings demonstrated a prevalent, sentimental view of the physical university campus amongst distance learners, which was driven by notions of its 'authenticity'.

Against this background, this study explores the perceptions of students who experienced 'emergency remote education' (Bovill, 2023, p.467). Drawing on sociomaterial perspectives to facilitate an analysis that examines the tensions and opportunities presented by remote learning, and explores students' experiences of navigating them, the authors address the following research questions. First, how did students perceive their transitions from on-campus to online learning spaces during this period? Second, to what extent were there any changes in their perceptions over time?

Methodology

The researchers employed a case study approach to explore the perceptions of students at a post-1992 university² within the North of England. Through selecting this design, the researchers sought to generate insights into students' lived experiences of the changing learning spaces presented by the pandemic. Following ethics approval, the researchers invited students from across the university, at any level of study, to take part in an online semi-structured interview or focus group (depending on their availability) at two time points, Time 1 (T1) in semester one and Time 2 (T2) in semester two, during the academic year, 2020–2021. The researchers recruited participants through various communications channels, including the virtual learning environment. Seventeen students participated in the study; 6 at T1 and 11 at T2. Of those, three students participated at both time points. The participants for this two-stage, cross-sectional study (Daniels, 2011) comprised undergraduates and postgraduates from different disciplines, including law, criminology, English, psychology, and graphic design.

Noting the value of photovoice for 'generating new insights into socially constructed realities' (Sutton-Brown, 2014, p. 170) and encouraging reflection (Wass et al., 2020), the researchers invited all participants at each of the two time points to take a photograph of their learning space. During their online interview or focus group, participants' photographs were shared on-screen to encourage reflections on: their learning spaces and the objects within them, how those spaces and objects may have evolved over time, and how the participants felt about them. The researchers also asked the participants to provide some

² Post-1992 refers to HEIs in the United Kingdom who were granted university status through the Further and Higher Education Act 1992. This includes both former polytechnic colleges and institutions created since 1992.

of the wider context around their spaces; for example, the extent to which their learning spaces were shared, and perceptions of how individual, contextual factors may impact their experiences of remote studying, enabling material concerns to be highlighted (Orlikowski & Scott, 2008). Following this, participants engaged in semi-structured discussions with topics guided by the researchers that included access to support, technological barriers, and the overall student experience.

The researchers recognise some inherent limitations with the chosen approach. First, participant self-selection carries an inherent risk of bias because it may encourage those with clear opinions on the topic to take part (Sharma, 2017). Second, as the findings were not intended to be generalizable, the researchers did not systematically collect demographic data from the participants. Third, as academics who were working within the same institution where the participants were studying, the research team noted their status as insider researchers as they were exploring a phenomenon within the context of their own institutional workplace (Mercer, 2007). This necessitated an awareness of the inherent challenges, including ‘informant bias’ (Mercer, 2007, p. 1). The team mediated this through engaging with collaborative reflexivity (structured researcher meetings where insights from the data collection process were shared, as detailed in Dickinson et al., 2022). Their insider researcher status also generated opportunities for creativity, empathy, and increased authenticity throughout the research (McDougall & Henderson-Brooks, 2021). For example, the development of insights into the challenges faced by students, through hearing participant experiences, influenced the researchers in their teaching practice.

Data analysis

The researchers recognised how ‘a balanced and centred use of [a] theoretical framework can bolster qualitative research (Collins & Stockton, 2018, p. 1). Taking an abductive approach facilitated the creation, and modification of, the analytical framework that underpins this study (Dubois & Gadde, 2002). First, the researchers drew on the broad lines of enquiry outlined in the research questions identified above and, informed by the collection of the data, noted commonalities between responses to generate an initial list of codes (Griffiths et al., 2021). Next, the researchers explored extant literature on sociomaterial perspectives within education to select two framings of sociomateriality, namely CHAT and spatiality theories. The researchers noted how the historical development of cultural expectations, which are often situated within designated spaces and material experiences (see, for example Griffiths et al., 2021), can frame students’ university experiences. They selected CHAT accordingly to facilitate an analysis of macro- and meso-level influences on individual action. Recognising how such influences can impact emergent practice, the researchers combined CHAT with spatiality theories to analyse the ‘inherently spatialised practice[s]’ of learning and teaching, and to consider the ‘multifaceted encounters’ between the spaces in which they take place and those who occupy them (Acton, 2017, p.1449). This aligns with this study’s focus on the changing nature of learning spaces during the pandemic to illuminate the influence of materiality on student experience, with a focus on practice/s. (Accordingly, Ellis and Goodyear’s (2016) definition of ‘studying’ practice was adopted to denote the range of activities and tasks that students engage with in their learning role.) Drawing on the literature review referred to above, the researchers generated a coding table (Pearse, 2019), and used these codes to analyze the data that they collected, before organising it into themes that aligned with the theoretical perspectives offered by

Table 1 A summary of the key literature sources and how they align with the codes and themes that were generated for data analysis

Source	Codes	Theme
Adekola et al. (2017); Harris & Abedin (2016); Cliff et al. (2022)	Expectations and preferences for learning experiences	<i>Power dynamics</i>
Adekola et al. (2017); Harris (2006)	Loss of informal contact with tutors	
Acton (2017); Fenwick (2015); Gourlay (2021)	Degree of control over learning spaces/ How participants select and negotiate their remote learning space	
Acton (2017); Harris & Abedin (2016); Orlikowski and Scott (2008)	Blurring of learning space boundaries	
Adekola et al. (2017); Farrell and Brunton (2020); Harris & Abedin (2016); Gravett (2021)	Importance of peer groups and peer influence on experiences	<i>Community participation</i>
Gravett (2021); Gravett & Ajjawi (2022)	Connection between remote learning and loss of progression	
Fenwick (2015); Orlikowski and Scott (2008)	Creating multipurpose spaces	

sociomateriality. Table 1 provides a summary of the key literature sources that have been explored in the previous section, and the codes and themes that were generated.

Following the analysis of the data, and recognising the benefits of member-checking (Birt et al., 2016), the researchers also invited the participants to comment on their findings prior to submission for publication.

Findings

Using the above theoretical framework, data analysis generated two principal themes, in response to the research questions. The first theme of power dynamics evidenced inter-relations between participants' pre-conceptions, and actual experiences, of university spaces, both on-campus and online, and the level of agency they felt that they had over these environments. The second theme of community participation revealed a perceived importance of community to the student experience and, alongside agentic behaviours for community-building, the inhibiting and facilitating factors of technology are discussed. Key findings are reported below.

Power dynamics

The on-campus student experience has an enduring, historical cultural context that influences students' expectations of online learning, regardless of their own experiences of campus. This is evident from the findings when participants juxtapose their online learning experiences with their cultural expectations of university.

[Lecturers are] always asking questions. So, I suppose it's forcing engagement, but actually even if they don't do that, people end up contributing anyway. So, there's definitely a willingness to contribute, and it's not just driven by feeling obliged to [...] it's partly the fact that it is English, so that means that anybody can have their own opinion on what we're learning. It's not hard facts. It's not as if somebody can say, oh, well, that's just wrong. There is a right and wrong in terms of definitions and things like that, but even those are debatable. [...] Yeah, that leaves lots of room open for people to contribute because I suppose they can, they're free to. (P20: T2)

For this participant, seminar discussion remains unaffected by the online environment. They also suggest that the discursive practice of their discipline positively impacts on their peers' willingness to contribute. Further findings support the impact of discipline-specific cultures with a design student noting that 'obviously we're used to being in the studio and actually physically making things [...] it's quite hard with it being like, a subjective topic as well to really get useful feedback just over Zoom' (P21: T2). Most participants reported that online learning, and their increased choice around *where* and *when* to study impacted their motivation and studying practice ('We [students] always have our like, lazy thing'. P18: T2 and 'So I never just, like, do a [Zoom] call and scoot off. I'm always like, right, ok I'm gonna read through the notes I made.' P14: T1).

One student participant was also a teacher during remote delivery: engaging in a professional development course whilst simultaneously teaching classes within their own discipline. This participant reflected on how their experiences as a student influenced their teaching.

I've been conscious that sometimes we do use breakout rooms to allow students to talk. But the four or five people you've put into a room together, might not be four or five friends. They might be four or five quieter learners, or people who maybe don't have microphones, maybe they just don't understand [the task]. Maybe they're less engaged. Who knows? [...] People might not want to talk to each other. They might not want to have their cameras on because of what's going on around them. And we just don't know. So, I think my awareness of it means that when I put groups into breakout rooms, I'm very much sort of if you need anything more while you're in there just use the raise hand button and I will come and join you [...] Dropping in little suggestions of what they can be doing in the chat function. So maybe offering more scaffolding to the learning because I'm aware that the breakout room can be quite awkward. (P18: T2)

These reflections about their online teaching practice ('who knows?', 'we just don't know') highlight how breakout rooms, which are hidden from tutor observation, give students more control over the nature of their engagement. The use of breakout rooms represents an innovation and, as such, may provoke feelings of disruption. Note how this participant references their 'scaffolding' approach through use of the chat function, and how they believe that students might feel 'awkward' about directing their own learning during timetabled sessions. Another participant similarly reflects on the impact of changes in students' behaviour within online spaces.

The seminars particularly. Because people just [...] like I said earlier, people just walk out and they wouldn't do that in a normal practical physical session, they wouldn't just walk out halfway through. But they do it online. (P22: T2)

This participant was a first-year student, who only had experience of remote delivery, but was confident that the 'normal' physical campus space would regulate students' behaviour. This implies a perception that being on-campus requires compliance with spatial obligations that may not exist online. This is reinforced by the participant describing how 'people just walk out' of an online seminar which does not reflect the physical reality of leaving an online session but aligns with an on-campus conceptualisation of learning spaces. Through using language aligned with physical spaces, this participant expresses disapproval within a cultural framework of appropriate classroom behaviour. Other participants referenced the struggle of measuring their progress without the mediation that on-campus engagement provided.

But the nervous side of it is not actually being on-campus, being able to just have back and forth with lecturers [...] the way that I would be able to if I was there. [...] I feel like I'm not able to confirm the learning that I'm doing myself is right and checking that the instructions that are being given, that I'm following them correctly. (P14: T1)

As might be expected, postgraduate participants reported more confidence with independent study ('I pretty much just work in the same way as before. It's just that I used to go to the library and now I don't go there. It's the same.' P17: T2). Whilst some participants associate uncertainty with remote delivery, another postgraduate participant questions why they had taught sessions at all.

[...] it's made me seriously question the actual value of some of the teaching that we get, because I think, well, various bits either haven't happened at all or they've been totally diluted [...] So, I hate to say it, but it makes me think that I might

not be necessarily as diligent about attending sessions on-campus as I once would have been, because I'm now wondering, well, if we can do all this without [lecturers], why do we need them? (P9: T2)

This suggests that lecturers' assumptions about the capability of postgraduate students for independent learning may have inadvertently led to this participant considering amending their subsequent study practice.

The theme of power dynamics manifested in other ways, with participants interrogating their home learning environment. In one of the focus groups, when participants shared their learning space images, they discovered that they both worked from their beds.

RES2: And I thought it might be worth actually, putting my opinion, across about my space, because I know it is quite unique. [...], it's nice to see someone else who [studies] from their bed.

RES 1: I know right.

RES 2: Everyone thinks I'm bonkers. So that was, I knew that it would be quite interesting to show that, because some people might be too shy to show their bed.

[...] RES 1: Yes. I was super happy to see you also worked from a bed, [...] I seem to be in a minority among my little cohort. Everyone seems to have pretty solid desk set ups.

(P11 and P12: T1)

This exchange demonstrates some insecurity about their environment, but also a high degree of pragmatic mediation. Participants reported residing in many different spaces, including their family home, student housing, and private rented accommodation, and each of these resulted in varied access to study space. Despite this hyper-individualised context, participants reported that there were clear, culturally imposed expectations for what constituted an acceptable study space. However, some participants still struggled even when they had access to a so-called 'solid desk set-up'.

[At the start of the course] the course leader made a big point to talk about how important it was to have a study space that you felt comfortable in and was adequate in every way for the job, and it was [before the pandemic]. But all of a sudden it isn't, because now it doubles up as my office space as well. And it's not only my office space, it's also my meeting room when I meet people, which is, for my job, almost all day, every day. So, it's become a very claustrophobic, multipurpose space and it's no longer my comfortable study space that it once was. (P9: T1)

This account highlights how the mediating forces of policy, in this case a nationwide order for most employees to 'stay at home', can engender negative feelings towards a previously comfortable space. Furthermore, well-intended comments from faculty could unintentionally compound the insecurities reported earlier for students who cannot access 'adequate' study spaces.

This next section will report on the findings around the theme of community participation and identify some connections with the 'power dynamics' theme.

Community participation

Participant accounts reinforced existing evidence for community participation as a central component of the university experience.

[...] the opportunity to make new friends, the opportunity to engage in almost any kind of extracurricular sporting, hobby kind of activity you can think of in the form of societies. The opportunity to see talks, and watch live music and, you know, get involved in demonstrations and, you know, just [...] whatever your thing is, there is a community of people at university who can nurture that and allow you to really pursue it. (P12: T1)

The forced transition to online learning may have particularly impacted new students because they had fewer opportunities for building peer relationships that could help them navigate the shifting socio-spatial challenges, and isolation, presented by this context.

Well, I don't really feel connected to anyone on the course whatsoever, and last year [during undergraduate studies] I lived with five girls from my course. So, it seems like I'm really on my own in this one.' (P16: T1).

The above account underlines evidence about the importance of participating in 'studentlands' for developing peer relationships and reducing isolation. Similarly, other participants described how they felt fortunate to have had an opportunity to establish peer groups before making the transition to online learning:

[...] you already know people from previous years in your degree, so you've got that friend group, even if you are a bit separated... And I mean, you know, I feel nothing but sympathy for people who are just starting their university experience now because I, it doesn't appear that they have any of that, frankly.' (P12: T1)

However, the findings also illustrated changes at the T2 data collection point when some participants expressed how they had made connections with their group since they had moved to the online environment, as described by the following participant:

[I've] managed to have some really good discussions and I feel like I'm part of a group, even though we are technically online and not actually together, it feels as if I'm with people. So, we've managed to bounce ideas off each other. (P20: T2)

The T2 data also uncovered fluctuating power relations in the context of community engagement. One participant recalled an instance in their second semester of online teaching when their lecturer could not access the session for the first hour due to technical difficulties.

We were all just bantering about, like in the chat section, which was nice. And it was funny. It was a good laugh [...] But, yeah, that was something that we would never have done last semester we would have kind of all just sat there waiting like 'oh [...] shall we go, shall we stay'. Whereas we were all having a laugh and a joke, which was nice [...] that was an improvement. (P11:2)

This demonstrates how power relationships may shift over time within the online environment as students develop some ownership over the online space as opposed to the physical spaces of campus, which may be perceived as the lecturers' domain. Note the

participant's assertion that it 'was something that we would never have done last semester'. It appears as if the students' changing sense of assurance impacts on their praxis within their learning community.

In addition, one of the participants suggested how they were meeting the challenge of creating peer networks online.

INT: So, do you feel you can stay connected to your peers on your course online?

RES: I feel that we can, of course, it's a bit I'd say a bit more awkward than, like being in person, but like, for example, [...] there's the use of social media nowadays. Obviously, it makes it easy to connect with peers, and also, if we need a support group, where it's just us, not the teacher, we can organise a Zoom session and go through things that we're not understanding or like information that we need to share with one another. I'd say it's different, but it still works. (P23: T2)

This demonstrates further evidence of students co-creating, and participating in, the negotiation of online learning spaces. These reflections highlight the need for students to have distinct spaces to engage with just their peers and 'not the teacher' and how, over time, students may develop their own approaches to accessing peer support.

The findings highlight how students value the importance of physical campus spaces for building connections with both peers and staff, whether in-class, in-between classes, or when travelling to and from campus.

Let's say we'd have a four-hour gap before our next lecture, and we'd all stay in together, who you're friends with and it just, it was so nice being around people. And now it's just, you log on to zoom, you sit in your room, and you don't go anywhere else. (P11: T1)

Others highlight their walk to campus ('meeting people along the way.' P12: T1) for building a sense of community and maintaining motivation.

I wouldn't really miss any [timetabled] class last year, but I think that might have been to do with like, all my house[mates] [...] would always be going. So, I would like, know that I would like, have to go.' (P16: T1)

These accounts were taken from T1 when participants may have been nostalgic in their perceptions of what they had lost, rather than focusing on developing alternative methods for peer-engagement. The same participant described their feelings about being asked to engage in seminar discussion.

[I feel] a little bit funny about it. It does seem, I don't know, like quite forced that there's like four people that you've never met to have a discussion about this. But I suppose that is what happens in normal seminars and I've never had an issue with it. It just seems the whole online thing makes it a bit more intimidating' (P16: T1).

This was one area of commonality across both time points, suggesting that students' motivation to participate was complex.

INT 1: Why do you think people come to the calls but don't engage or go away? Why do you think people even do that? Why come in the first place? [overtalking]

P24: It ticks it off.

P23: the mark, yeah. [...] I think I've probably done it like if I have a call at 9am and I'm really tired, I'll just go in it and have my camera off and kind of have it in the background, whilst I'm just getting ready. So, I'm definitely guilty of doing it.

INT 2: But, would you still be listening in though to what's being said, or?

P23: Yeah, I'd have it on more in the background, probably wouldn't be as engaged, but it depends if it was something I was really interested in. If it was like a lecture that I'm not that interested in, then I probably wouldn't bother as much. (T2)

This exchange demonstrates further associations between the two key themes addressed by this paper, as students have the power to negotiate the extent of their engagement more freely within the online environment as compared to on-campus classes. The following account demonstrates the link between participation and conceptions of spaces.

I think it's more cameras off. I think at the very start, everyone tried to show a face and now I feel like people are getting [...] less engaged with it. In 9:00 a.m.s [classes], you find that teachers talk, and no one responds and sometimes you respond out of guilt for the teacher having an empty class. (P11: T2)

This participant notices how fewer peers' willingness to 'show a face' correlated with disinclination to answer lecturers' questions. This participant also determines that disengagement results in 'an empty class'. Even though they can see that other students are logged on, they perceive them as not being present within the learning space because of non-participation.

Discussion

This study sought to answer the following two research questions from the perspectives of students who experienced 'emergency remote education' (Bovill, 2023, p.467) at a post-1992 UK university during the 2020/2021 academic year. First, how did students perceive their transitions from on-campus to online learning spaces during this period? Second, to what extent were there any changes in their perceptions over time? The findings establish the importance of the materiality of campus and its impact on student experience within this context. They illuminate how restrictions that are placed on the learning environment can foreground the relationship(s) between materiality and student experience. They also reveal students' reactions to the top-down approach taken to HE policy making and its potential for exposing manifestations of power within the student experience. Each of these will be considered in turn.

Restricted learning environments and relationship(s) between materiality and student experience

The findings demonstrate that participants craved the observation that physical campus spaces provided. This sentiment manifested in a variety of ways. First, and in line with previous research (Hollister et al., 2022) participants lamented the loss of informal, spontaneous tutor and peer interaction (both during and in-between timetabled classes) for developing their studying practice. Second, there was a belief that physical spaces enabled classroom management, and the regulation of student behaviour and engagement; a viewpoint that is associated with a conservative approach to learning and communities of practice (Fenwick, 2015). This aligns with existing evidence of perceptions that online learning is inferior (Adekola et al., 2017; Griffiths et al., 2021) and lacks similar opportunities for student-tutor communication and developing understanding (Photopoulos et al., 2023).

Third, as anticipated by the Quality Assurance Agency (2021), participants from practical disciplines that focus on making or doing (for example nursing or graphic design) identified a loss of formal and informal observation of practice as significant for developing their own praxis. Finally, participants highlighted the unknowable and unobserved spaces of their studying practice, resulting in a range of responses to the increased freedom presented by the online learning environment. Participants explained how they had adopted varied approaches towards engagement. These included both consistent, independent learning modes and tactical engagement strategies; for example where students would log into a lecture to register their attendance, but complete other tasks during the session. The literature illustrates how the pandemic exacerbated pre-existing concerns about engagement with in-person classes given the inherent issues that it presented around isolation and technology (Hollister et al., 2022). The findings from this present study demonstrate how participants perceived loss of peer support as a significant factor that impacted their remote learning experience.

Participants also highlighted the importance of liminal spaces for supporting their studying practice through encountering the university community and accessing support, what Savin-Baden (2008) refers to as social learning spaces. They cited a range of spaces that they encountered and participated in; for example, as they walked to campus, moved between classes, engaged with student societies, and frequented campus leisure areas. Whilst previous research focuses on more obvious campus spaces, such as student life centres (also known as student unions), to argue how spatiality and sociality can combine to foster students' place-attachment (McLane & Kozinets, 2019), the present study illuminates the potential for broadening understandings around the types of spaces that students perceive as being important to their university experience, and drawing on that to inform future policymaking around the campus learning environment.

Students' reactions to top-down HE policy making and manifestations of power within the student experience

The pandemic amplified a top-down approach to policymaking in HE, driven by national and international restrictions. Participants' responses demonstrated how the development of their studying practice over time was influenced by policy and their reactions to it. The implementation of unilateral and homogenised approaches for online teaching delivery contended with discipline-specific learning cultures, with laboratory, or studio-based courses, and those that involved a work placement, requiring more extreme changes to studying practice. In line with extant literature (Bayne et al., 2013; Smyth et al., 2012), participants' opinions varied about the benefits of online learning. Yet, the adoption of a sociomateriality perspective revealed evidence of emergent praxis, as participants drew on the assemblages presented to them, including an entanglement of policies, pedagogic approaches, digital spaces, and technological tools (Acton, 2017), to engage with their studies, for example through breakout rooms and the chat function. Furthermore, there was evidence of changes over time. Despite the power dynamics that are inherent in top-down policymaking, participants revealed increased agency as they independently connected with peers online and engaged more informally within virtual learning spaces.

In terms of the physical spaces used by participants for studying, a few had dedicated office spaces, most had a desk (assembled in varied spaces, including bedrooms, living rooms and dining areas), and some worked from their bed. Although there were institutional-level support structures in place, these were for access to basic equipment rather

than to address the variation in spatial conditions. Participants revealed anxieties around a misalignment between the assumed, culturally influenced ‘ideal’ space for study and the lived realities of their learning environments. For some, the circumstances of their learning space led to a reluctance to switch their cameras on, due to how they might be perceived. Tutor and peer resistance to such ‘lurkers’ may be a way of asserting control during a period of uncertainty ‘raising questions about what counts as presence in digital spaces – and who decides’ (Savin-Baden, 2008, p. 84).

Similarly, there was evidence that it could be detrimental to make assumptions about students’ readiness to engage with online learning, particularly in the context of the diverse student body and the increasing ‘spaces between learners’ (Savin-Baden, 2008, p. 11). By way of example, the findings revealed expectations that postgraduate students would feel comfortable with increased independent study, leading participants to question the value of engaging with timetabled teaching. Although the pandemic was a unique context, the discomfort reported by students as they were expected to direct their own learning, away from the guiding presence of their lecturer and peers, provides a cautionary note for the development of future learning spaces (Tietjen et al., 2021). However, the study illustrated changes over time as participants developed strategies for gaining peer-support within the confines of the restrictions imposed to claim space for themselves and their peers, as other students have done before (Zhang, 2014). The findings also suggest a shift in how students conceptualised their relationships with both university spaces and their lecturers. Perceptions of the lecturer as the ‘expert’ were interrogated; participants initially sought reassurance from their lecturers but later demonstrated increased confidence and ownership within the online learning space, with some developing their own praxis for accessing peer support.

Conclusion and recommendations

Despite the dwindling influence of pandemic policy restrictions in the UK, HE leaders and staff within on-campus universities are continuing to incorporate online teaching and learning, as the movement towards blended curricula has been accelerated by the pandemic and expedited by financial pressures (Foster et al., 2013). The findings from this study demonstrate some important considerations for these stakeholder groups and, in response, the authors make the following recommendations for further developing the student experience. First, blended learning design should avoid standardised, institution-wide approaches. Aligning with findings from research conducted by Sharaievska et al. (2022), this study demonstrates how the student experience varied across disciplines and between individuals. HE institutions should incorporate blended learning that is led by pedagogical principles, and sensitivities to individual students’ circumstances, to foster inclusivity and increase motivation. Second, universities should provide increased opportunities for developing student agency through involving students in co-creating and negotiating their own learning spaces to further encourage sense of ownership. Such an approach could support the development of students’ expectations of both on-campus and online learning for the benefit of student engagement and satisfaction. Third, HE leaders and staff could consider how online spaces may present novel opportunities for organically evolving student engagement that may not be possible in an on-campus setting, due to cultural understandings of campus space as the lecturers’ domain. This could include advice about creating shared workspaces online and support for setting up online, non-timetabled peer meetings.

The findings from this study align with wider proposals for fostering student community (Association of University Directors of Estates, 2022) but the authors would urge a note of caution in adopting a top-down approach to estates policymaking within HE. The findings suggests that a community-first, co-creation approach towards future policymaking would be more effective. Building on previous research that considers participatory placemaking in the university-student context (see, for example O'Rourke & Baldwin, 2016), the authors recommend the incorporation of such approaches in estates policymaking to encourage inclusive, community engagement with campus spaces. Universities need to ensure that any plans for expansion and regeneration are transparent and foster opportunities for developing meaningful dialogue with students and educators and drives forward sustainable, inclusive change.

Suggestions for future research

Following the limitations outlined in the Methodology, the authors make the following recommendations for future research. First, there is scope to adopt a multiple case study approach that explores students' perceptions of navigating materiality and studying practice at other types of institutions that exhibit differences, for example around student numbers, approaches to estate expansion and redevelopment, lecturer to student ratio, utilisation of learning spaces, and the availability of associated resources. Second, future research could examine the extent to which there are any links between students' backgrounds and their perceptions around navigating changing learning spaces. Third, in the post-pandemic context of increasing blended, informal and multimodal pedagogical approaches, further evaluation of the impact on students and university staff is necessary.

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Declarations

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References

- Acton, R. (2017). Place-people-practice-process: Using sociomateriality in university physical spaces research. *Educational Philosophy and Theory*, 49(14), 1441–1451. <https://doi.org/10.1080/00131857.2017.1309637>

- Adekola, J., Dale, V. H. M., Gardiner, K., & Fischbacher-Smith, M. (2017). Student transitions to blended learning: an institutional case study. *Journal of Perspectives in Applied Academic Practice*, 5(2), 58–65. <https://doi.org/10.14297/jpaap.v5i2.273>
- Association of University Directors of Estates. (2022). *Campus spaces and places: impact on student outcomes. Review of Evidence*. <https://www.aude.ac.uk/resources/Documents/Content?g=0432a12e-2a1d-4019-b228-356ec73abff6>.
- Bayne, S., Gallagher, M. S., & Lamb, J. (2013). Being ‘at’ university: The social topologies of distance students. *Higher Education*, 67, 569–583.
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research*, 26(13), 1802–1811. <https://doi.org/10.1177/1049732316654870>
- Bovill, H. (2023). Too much information: Exploring technology-mediated abuse in higher education online learning and teaching spaces resulting from COVID-19 and emergency remote education. *Higher Education*, 86, 467–483. <https://doi.org/10.1007/s10734-022-00947-0>
- Brooks, D. C. (2012). Space and consequences: The impact of different formal learning spaces on instructor and student behavior. *Journal of Learning Spaces*, 1(2), n2.
- Burns, D., Dagnall, N., & Holt, M. (2020). Assessing the impact of the COVID-19 pandemic on student wellbeing at universities in the United Kingdom: A conceptual analysis. *Frontiers in Education*, 5, 582882. <https://doi.org/10.3389/educ.2020.582882>
- Calhoun, D. W., & Green, L. S. (2015). Utilizing online learning communities in student affairs. *New Directions for Student Services*, 2015(149), 55–66.
- Cliff, A., Walji, S., Jancic Mogliacci, R., Morris, N., & Ivancheva, M. (2022). Unbundling and higher education curriculum: A Cultural-Historical Activity Theory view of process. *Teaching in Higher Education*, 27(2), 217–232. <https://doi.org/10.1080/13562517.2019.1711050>
- Collins, C. S., & Stockton, C. M. (2018). The central role of theory in qualitative research. *International Journal of Qualitative Methods*, 17, 1–10. <https://doi.org/10.1177/1609406918797475>
- Cox, A. M. (2018). Space and embodiment in informal learning. *Higher Education*, 75(6), 1077–1090.
- Daniels, C. D. (2011). Cross-Sectional Research. In S. Goldstein & J. A. Naglieri (Eds.), *Encyclopedia of Child Behavior and Development*. Springer.
- Dickinson, J., Griffiths, T.-L., & Austen, L. (2022). Collaborative methodological reflection: Disrupting the ethical practices of a creative method in higher education research. *Social Research Practice*, 12, 22–31.
- Downie, M. L. (2005). Efficiency outcomes from space charging in UK higher education estates. *Property Management*, 23(1), 33–42. <https://doi.org/10.1108/02637470510580570>
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55, 5530560 https://www.pm.lth.se/fileadmin/_migrated/content_uploads/6_Dubois_Gadde_Systematic_Combining.pdf
- Ellis, R. A., & Goodyear, P. (2016). Models of learning space: Integrating research on space, place and learning in higher education. *Review of Education*, 4(2), 149–191.
- Ellis, R. A., Goodyear, P., Prosser, M., & O’Hara, A. (2006). How and what university students learn through online and face-to-face discussion: Conceptions, intentions and approaches. *Journal of Computer Assisted Learning*, 22(4), 244–256.
- Farrell, O., & Brunton, J. (2020). A balancing act: A window into online student engagement experiences. *International Journal of Educational Technology in Higher Education*, 17(25). <https://doi.org/10.1186/s41239-020-00199-x>
- Fenwick, T. (2015). Sociomateriality and learning: A critical approach. In D. Scott & E. Hargreaves (Eds.), *The SAGE handbook of learning* (pp. 83–93). SAGE Publications Ltd.
- Fenwick, T., Edwards, R., & Sawchuk, P. (2011). *Emerging approaches to educational research: Tracing the sociomaterial*. Routledge.
- Foster, P., Gross, A., & Borrett, A. (2013). The looming financial crisis at UK universities. *Financial Times* <https://www.ft.com/content/0aca64a4-5ddc-43f8-9bba-fc5d5aa9311d>
- Gordon, T., & Lahelma, E. (1996). ‘School is Like an Ant’s Nest’: Spatiality and embodiment in schools. *Gender and Education*, 8(3), 301–310. <https://doi.org/10.1080/09540259621548>
- Gourlay, L. (2021). There is no ‘virtual learning’: The materiality of digital education. *Journal of New Approaches in Educational Research*, 10(1), 57–66. <https://doi.org/10.7821/naer.2021.1.649>
- Graham, C. (2012). Transforming spaces and identities: The contributions of professional staff to learning spaces in higher education. *Journal of Higher Education Policy and Management*, 34(4), 437–452.
- Gravett, K. (2021). Troubling transitions and celebrating becomings: from pathway to rhizome. *Studies in Higher Education*, 46(8), 1506–1517. <https://doi.org/10.1080/03075079.2019.1691162>

- Gravett, K., & Ajjawi, R. (2022). Belonging as situated practice. *Studies in Higher Education*, 47(7), 1386–1396. <https://doi.org/10.1080/03075079.2021.1894118>
- Griffiths, T.-L., Dickinson, J., & Fletcher, A. (2021). A case study of student learning spaces during the pandemic; A sociomateriality perspective. *Journal of Perspectives in Applied Academic Practice*, 9(2), 77–81.
- Griffiths, T. L., Dickinson, J., & Kellock, A. (2022). Supporting multidisciplinary transitions to the blended environment: Innovations and Challenges for Lecturers. In *Agile Learning Environments amid Disruption: Evaluating Academic Innovations in Higher Education during COVID-19* (pp. 123–138). Springer International Publishing.
- Güzer, B., & Caner, H. (2014). The past, present and future of blended learning: An in depth analysis of literature. *Procedia-Social and Behavioral Sciences*, 116, 4596–4603.
- Harris, B. (2006). The importance of creating a “Sense of Community”. *Journal of College Student Retention: Research, Theory & Practice*, 8(1), 83–105.
- Harris, G., & Abedin, B. (2016). *Participating or not participating? A sociomaterial perspective of the embeddedness of online communities in everyday life*. Retrieved from: <https://arxiv.org/pdf/1605.04714.pdf>
- Holdsworth, C. (2009). Between two worlds: Local students in higher education and ‘scouse’/student identities. *Population, Space and Place*, 15(3), 225–237. <https://doi.org/10.1002/psp.511>
- Hollister, B., Nair, P., Hill-Lindsay, S., & Chukoskie, L. (2022). Engagement in online learning: Student attitudes and behavior during COVID-19. *Frontiers in Education*, 7, 851019. <https://doi.org/10.3389/educ.2022.851019>
- Lueg, K., Graf, A., & Boje, D. (2023). A Danish case study of a sociomaterial construction of a new nomos and purpose of higher education. *Higher Education*, 85, 455–472. <https://doi.org/10.1007/s10734-022-00844-6>
- McDougall, J., & Henderson-Brooks, C. (2021). Lessons learnt: Reflections on the ‘Insider-Outsider Divide’ in working with culturally and linguistically diverse students in a participatory action research project. *International Journal of Qualitative Methods*, 20, 1–11. <https://doi.org/10.1177/1609406921106663>
- McLane, Y., & Kozinets, N. (2019). Spatiality, experiences, and the formation of place attachment at campus student life centers. *College Student Journal*, 53(1), 78–98.
- Mercer, J. (2007). The challenges of insider research in educational institutions: Wielding a double-edged sword and resolving delicate dilemmas. *Oxford Review of Education*, 33(1), 1–17. <https://doi.org/10.1080/03054980601094651>
- Mueller, D., & Strohmeier, S. (2011). Design characteristics of virtual learning environments: State of research. *Computers & Education*, 57(4), 2505–2516.
- O’Rourke, V., & Baldwin, C. (2016). Student engagement in placemaking at an Australian university campus. *Australian Planner*, 53(2), 103–116. <https://doi.org/10.1080/07293682.2015.1135810>
- Orlikowski, W. J., & Scott, S. V. (2008). 10 Sociomateriality: Challenging the separation of technology, work and organization. *Academy of Management Annals*, 2(1), 433–474. <https://doi.org/10.5465/19416520802211644>
- Pearse, N. (2019). An illustration of deductive analysis in qualitative research. In *18th European conference on research methodology for business and management studies* (p. 264). <https://doi.org/10.34190/RM.19.006>
- Phillips, R., Seabourne, K., Goldsmith, A., Curtis, N., Davies, A., Haynes, W., McEnroe, R., Murphy, N., O’Neill, L., Pacey, C., Walker, E., & Wordley, E. (2021). Student loneliness through the pandemic: How, why and where? *The Geographical Journal*, 188, 277–293. <https://doi.org/10.1111/geoj.12438>
- Photopoulos, P., Tsonos, C., Stavrakas, I., & Triantis, D. (2023). Remote and in-person learning: Utility versus social experience. *SN Computer Science*, 4(2), 116. <https://doi.org/10.1007/s42979-022-01539-6>
- Quality Assurance Agency. (2021). Ongoing implications of the pandemic for placements and practice-based courses, including Field Work. <https://www.qaa.ac.uk/docs/qaa/guidance/ongoing-implications-for-the-pandemic-for-placements-and-practice-based-courses.pdf>
- Roth, W.-M., & Lee, Y.-J. (2007). “Vygotsky’s neglected legacy”: Cultural-historical activity theory. *Review of Educational Research*, 77(2), 186–232. <https://doi.org/10.3102/0034654306298>
- Samura, M. (2016). How can residence hall spaces facilitate student belonging?: Examining students’ experiences to inform campus planning and programs. *Planning for Higher Education*, 44(4), 90.
- Savin-Baden, M. (2008). *Learning spaces: Creating opportunities for knowledge creation in academic life*. Open University Press.

- Sharaievska, I., McAnirlin, O., Browning, M. H. E. M., Laron, L. R., Mullenbach, L., Rigolon, A., D'Antonio, A., Cloutier, S., Thomsen, J., Metcalf, E. C., & Reigner, N. (2022). "Messy transitions": Students' perspectives on the impacts of the COVID-19 pandemic on higher education. *Higher Education*, 1–18. <https://doi.org/10.1007/s10734-022-00843-7>
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749–752 <https://www.allresearchjournal.com/archives/2017/vol3issue7/PartK/3-7-69-542.pdf>
- Sheller, M., & Urry, J. (2006). The new mobilities paradigm. *Environment and Planning A*, 38(2), 207–226. <https://doi.org/10.1068/a3726>
- Smith, D. P., & Holt, L. (2007). Studentification and 'apprentice' gentrifiers within Britain's provincial towns and cities: Extending the meaning of gentrification. *Environment and Planning A*, 39(1), 142–161. <https://doi.org/10.1068/a3847>
- Smith, R. A., & Tinto, V. (2022). Unraveling student engagement: Exploring its relational and longitudinal character. *Journal of College Student Retention: Research, Theory & Practice*, 0(0), 1–16.
- Smyth, S., Houghton, C., Cooney, A., & Casey, D. (2012). Students' experiences of blended learning across a range of postgraduate programmes. *Nurse Education Today*, 32(4), 464–468.
- Stalmirska, A. M., & Mellon, V. (2022). "It feels like a job..." Understanding commuter students: Motivations, engagement, and learning experiences. *Journal of Hospitality, Leisure, Sport & Tourism Education*, 30, 100368. <https://doi.org/10.1016/j.jhlste.2021.100368>
- Sutton-Brown, C. A. (2014). Photovoice: A methodological guide. *Photography and Culture*, 7(2), 169–186. <https://doi.org/10.2752/175145214X13999922103165>
- Temple, P. (2008). Learning spaces in higher education: An under-researched topic. *London Review of Education*, 6(3).
- Tietjen, P., Bekiroglu, S. O., Choi, K., Rook, M. M., & McDonald, S. P. (2021). Three sociomaterial framings for analysing emergent activity in future learning spaces. *Pedagogy, Culture & Society*, 31(1), 17–36. <https://doi.org/10.1080/14681366.2021.1881593>
- Universities UK. (2020). *Actions being taken by universities in response to coronavirus*. <https://www.universitiesuk.ac.uk/topics/covid/actions-being-taken-universities>.
- University Alliance. (2016). Supporting thriving communities: The role of universities in reducing inequality. https://www.unialliance.ac.uk/wp-content/uploads/2016/05/Supporting-thriving-communities-UA_WEB.pdf
- van der Zijden, J. P., & Wubbels, T. (2023). Socio-emotional support in higher education: Evidence from first year learning communities. *Journal of University Teaching and Learning Practice*, 20(6), 23.
- Wass, R., Anderson, V., Rabello, R., Golding, C., Rangi, A., & Eteuati, E. (2020). Photovoice as a research method for higher education research. *Higher Education Research and Development*, 39(4), 834–850. <https://doi.org/10.1080/07294360.2019.1692791>
- Zasina, J., & Nowakowska, A. (2022). Is the 'student city' lost? The rhythms of Lodz as a consumption-oriented student city through the COVID-19 pandemic lens. *Population, Space and Place*, 29(2). <https://doi.org/10.1002/psp.2607>
- Zhang, Z. (2014). 'Let's Go for the Chicken-Drum': The Everyday Production of Social Space in a Chinese University. In P. Temple (Ed.), *The Physical University: Contours of space and place in Higher Education* (pp. 182–202). Routledge. <https://doi.org/10.4324/9781315813776>

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