Building higher education

The tension between espoused educational values and physical infrastructure

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Building higher education: the tension between espoused educational values and physical infrastructure

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Abstract

Through interviews with senior academic management representing 16 UK higher education institutions (HEIs), this study explores the relationship between the espoused pedagogical values focusing on student-centred learning, and the construction of large-class, fixed-seat lecture theatres. Despite the widespread promotion of student-centred, collaborative, and active learning approaches in university policy, educational strategies, and corporate literature, the physical infrastructure reflects a different set of priorities, often driven by logistical and financial considerations rather than pedagogical intent. The conceptual basis for the article is Argyris and Schön's theory of action: a theoretical framework that distinguishes between organisational espoused theory (what organisations say they do) and theory-in-use (what they actually do). The framework was designed to better understand how organisations produce behaviour sometimes at odds with their own values. The results of the study reveal a remarkable lack of pedagogical intentionality behind the investment in large-class auditoria. This study contributes to the discourse on the alignment between HEIs' physical infrastructure and their educational policies, highlighting a significant gap between pedagogical ideals and the realities of the physical teaching spaces created.

Keywords Theory of action · Higher education institutions · Student-centred learning · Large lecture theatres · Learning environments · Teaching spaces

Introduction

This study has its origins in the story of Northampton University's mid-2010s campus relocation, in which they chose not to build *any* lecture theatres (Armellini, Teixeira Antunes, and Howe 2021). At the same time, a university in a similar part of the UK was building a 500-seat lecture theatre, which prompted questions around how institutions arrive at these decisions.

Large-class lectures form the backbone of undergraduate teaching for many universities, yet their place in contemporary higher education is contested (Loughlin & Lindberg-Sand, 2023). It is argued that large-class lectures in fixed-seat lecture halls

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encourage transmissive teacher-centred approaches to learning and teaching (Bourdieu et al., 1996; Schoepp, 2019), which run against the declared values of student-centred approaches to learning and teaching embedded in national and European quality assurance (QA) policy (Loughlin et al., 2021).

The dilemmas associated with large-class teaching are an international phenomenon and since the pandemic, Berkeley in North America ('Big Lectures "a Thing of the Past", Says Berkeley Chancellor' 2021), and a number of Australian universities have declared that they will drastically reduce or phase out large-class lectures from the curriculum ('Australian Universities Mull Dropping Face-to-Face Lectures Post-Pandemic' 2021). These cases are newsworthy because they are unusual, the norm for large-class teaching remains large auditoria.

To explore the apparent paradox of higher education institutions (HEIs) building large fixed-seat lecture halls which could undermine their commitment to student-centred learning, this empirical study examined educational strategy documents and conducted interviews with senior educational leaders representing sixteen UK universities.

Pro-Vice Chancellors for Education (PVCEs) form the nexus of outward facing declarations of pedagogical intent (policy) and its implementation within the university (practice). That is, they often write the institutional education strategy, and are (at least partly) responsible for guiding pedagogy and physical teaching space within their institutions. Hence, this research is comprised of 12 semi-structured interviews, primarily with PVCEs, or the equivalent in their institution. Between them, the study participants (some of whom had held similar roles at other institutions before moving to their current posts) have been directly involved in the project boards/steering groups, for 16 major building projects (all of which feature large lecture theatres), and were able to offer privileged insight into the thinking behind the construction of the physical space in which we teach.

The connection between the physical university teaching spaces and the learning that takes place there is relatively unexplored in higher education research (Leijon et al., 2022; Temple, 2018). The potential incongruity of HEIs producing literature and policies, which advocate student-centred pedagogies while simultaneously building large-scale lecture theatres, has not thus far been addressed in the literature.

The conceptual framework for the research is Argyris and Schön's *theory of action* (1992), which recognises that individuals and organisations can sometimes produce behaviour at odds with their declared values. Argyris and Schön's work on organisational behaviour suggests that individuals and organisations have *espoused theories*, which can be stated explicitly, and *theories-in-use* that must be inferred from actual behaviour. In the context of this study, it is the relationship between the institutionally espoused theories of approaches to learning and teaching and the observed behaviour (in the construction of large-class lecture theatres) which are of interest.

Reflexive thematic analysis (RTA) is the analytic tool used to develop the resulting themes due to its flexibility in addressing both semantic and latent data (Braun & Clarke, 2022). Three themes were developed as a result of the analysis: *Post-Pandemic and the Creation of the sticky campus; The Administrative Tail Wagging the Pedagogic Dog*; and *Pedagogy, Pragmatism, and The Student Experience*. The findings of this study suggest a remarkable lack of pedagogical intentionality for such high-value capital projects. Of the many rationales offered for the construction of these lecture theatres raised during the interviews, none involved a deliberate *educational* choice to teach in large lecture halls.

The research question below reflects the tension that can be seen developing between espoused educational values and physical infrastructure.

The research question

How do HEIs understand the intersection of the construction of large lecture theatres with their institutional and national policy commitment to student-centred learning pedagogies?

A brief literature review is followed by the methodology, analysis, and discussion.

Physical space and student learning

From the 1990s, efforts to harmonise standards across Europe and embed student-centred approaches into learning and teaching were formalised in the Bologna Accord and thereafter quality assurance processes (Loughlin et al., 2021). The Bologna Process website states that: 'Student-centred learning (SCL) is an approach to education, which aims at overcoming some of the problems inherent to more traditional forms of education by focusing on the learner and their needs, rather than being centred around the teacher's input' ('European Higher Education Area and Bologna Process', n.d.).

It is not the purpose of this article to argue for student-centred approaches to learning and teaching. However, central to the issue of whether HEIs espoused educational values match their practice is the extent to which large, fixed-seat lecture halls might impede student-centred pedagogies.

There was a flurry of research into learning spaces during the 2010s when active learning was a popular topic of study, there has been little since, and none explicitly focused on large-class lecture halls. In their recent systematic review, Leijon et al. found that learning spaces were under-researched and under-theorised. They conclude that:

> Most research is on relations between design, learning activities and learning results. Space cannot be isolated as a single cause to positive learning outcomes, but people, space, interaction and learning are intertwined. Closely connected is the theme on how space is perceived by teachers and students. Perception of space is emotional but also intertwined with the pedagogy used in the space (2022, 15).

Ascribing academic outcomes to particular physical teaching environments is all but impossible (Temple, 2018). However, the physical design and layout of learning spaces have been shown to have an influence on approaches to learning and teaching by staff in higher education (Temple, 2008). Trowler (2019) argues that lecturers' attitudes to teaching influence students' approaches to learning. That is, teacher-centred/transmissive approaches are associated with surface approaches to learning by students, whereas student-centred teaching is associated with deep approaches. Bourdieu claims that so 'rigorously does the physical situation [of large lecture halls] govern the behaviour of both students and lecturers that attempts to establish dialogue between them quickly degenerate into fiction or farce' (Bourdieu, Passeron, and Saint Martin 1996, 11). Therefore, while by no means direct, the physical space seems likely to influence learning and teaching by affecting the pedagogical approaches adopted by staff, and as a result of that, the approaches to learning by students.

It should be noted that, even in large teaching spaces, teaching practice varies widely, with many examples of student-centred teaching taking place in them; famously, Harvard physics Professor Eric Mazur pioneered *Peer Instruction* in a large fixed-seat lecture theatre (Crouch & Mazur, 2001). 'Many faculty have been arguing forcefully for a changed way of teaching, swimming against the tide for decades. They have seen active learning succeed in their traditional classrooms, despite its awkward fit. They have made do, and they have made active learning work' (Baepler et al., 2023). Nonetheless, the balance of the literature suggests that a great deal of transmissive, teacher-centred practice continues to take place in large lecture-theatres (e.g., Gynnild et al., 2021; Loughlin & Lindberg-Sand, 2023; Schoepp, 2019).

After more than a decade of researching active learning classrooms (when compared with traditional lectures), Baepler et al. declare that: 'ALCs have an independent and statistically significant positive impact on student learning as measured by grades. We could confidently conclude that space indeed matters to learning' (2023, 6).

They also found that the physical space impacted the behaviours of staff (by encouraging them to adopt active learning approaches) and students (as a result of changes in staff behaviour), resulting in improved student outcomes. A finding echoed across disciplines (Deslauriers et al., 2019; Kozanitis & Nenciovici, 2023). Brooks and Solheim (2014) claimed that flexible learning classrooms increased student engagement and motivation. Park and Choi (2014) observed that active learning spaces eradicated some of the inequities experienced by academically weaker students, who tended to 'hide' in large 'traditional' spaces. They also contend that the choice of classroom design conveys the educational philosophy of the institution.

The educational philosophy of institutions is often difficult to pin down. Sweeping statements of 'research informed teaching' and 'active learning' in the corporate literature mask countless pedagogic approaches within and between disciplines. In large and diverse university settings, the educational culture tends to reside more locally within disciplines and departments (Roxå & Mårtensson, 2009; Trowler, 2019). The theory of action (described below) will be used to assess the extent to which the universities in this study implement their espoused theories of education.

Theoretical framework: the theory of action

In terms of assessing whether universities actually practice the educational philosophy of their literature, Argyris and Schön (1999) have a *theory of action*: a theoretical framework that distinguishes between *espoused theory* (what people/organisations say they do) and *theory-in-use* (what people/organisations actually do). The framework was designed to better understand how organisations produce behaviour sometimes at odds with its own values.

Espoused theories represent the ideals, values, and norms that individuals or organisations profess to adhere to. In an organisational context, espoused theories are often found in official documents, mission statements, policies, and the verbal explanations given by members when they describe their actions to others.

Theory-in-use represents the theory actually used by the individual or organisation, discernible (only) from observable actions. It consists of a number of core concepts that help to explain how and why organisations behave the way they do, particularly when it leads to outcomes at odds with their espoused values:

- Governing variables: Governing variables are described as the values that the actors strive to satisfice. They may be tacit and derivable only from observable behaviour. These values have acceptable limits, which the actors will go to extraordinary lengths to sustain, in order to avoid questioning the governing variable itself.
- Models I and II: Model I behaviour involves organisations making adjustments within existing frameworks (without questioning underlying assumptions) and goals (governing variables), while Model II behaviour is more transformative and involves questioning and altering the governing variables and policies themselves, leading to more significant change.
- Defensive routines and the undiscussable: Organisations develop *defensive routines* that prevent embarrassment or threat, making it hard to identify the causes of problems. Argyris (1999) identifies the defensive and protective behaviours that individuals and groups exhibit in organisations, such as blaming, avoiding feedback, rationalising, and concealing information—defensive routines and actions maintain the status quo. Linked to defensive routines are issues which become *undiscussable* within the organisation. This perpetuates a culture where problems are not openly discussed or resolved, hindering organisational growth and learning.

Fear of failure or embarrassment can lead to a 'doom loop', where mistakes become undiscussable, they are then repeated, generating negative outcomes, which in turn, become undiscussable. The theory of action is designed to surface how organisational culture and procedures enact defensive reasoning that counters the espoused values and objectives of the organisation.

The analysis and theme generation are informed by aspects of Argyris and Schön's framework of theory in action, and the themes explored more fully in relation to the framework in the general discussion. These follow the methodology.

Methodology

This study utilised qualitative semi-structured interviews to explore the perspectives of (primarily) pro-vice chancellors for education on what they felt were the pressures, constraints and opportunities leading universities to build large lecture theatres. A total of nine pro-vice chancellors for education (or the equivalent at their institution) from universities across the UK were interviewed (quotes labelled pvc#), one vice chancellor (also labelled pvc#, to preserve anonymity) and two chief operating officers (labelled coo#). Participants were initially identified through purposive and snowball sampling based on their seniority and experience of university infrastructure projects—i.e., they were all chairs/members of project boards/steering committees for projects that included large, fixed-seat lecture theatres. Of the projects discussed, most were completed, some were under construction, and some still in the design phase. Potential participants were contacted via email to take part in the study. Several of the PVCs had previously worked at a different institution in a similar role, and so, between them, the PVCs were involved in projects across sixteen UK universities. The institutions involved ranged from elite (1) to Russell Group (5) to mid-ranking (8) and included two from the lower reaches of the league tables.

The interview protocol consisted of open-ended questions allowing participants to describe their experiences and perspectives related to large lecture theatre construction.

Questions probed the various factors institutions considered during the infrastructure decision process; the tensions between competing demands, how they balanced different stakeholder needs, and how much influence they felt they had in the process. Informed participant consent was obtained prior to data collection; the interviews were recorded and transcribed verbatim. The study obtained ethical approval from two UK universities prior to data collection.

Transcripts were analysed in NVivo using RTA, following the guidelines outlined by Braun and Clarke (2022). RTA was chosen for this study because of the flexibility offered, in that both inductive and deductive approaches were taken, and semantic and latent codes considered. The analysis aimed to inductively identify patterns and meanings related to the research question and then consider those in relation to Argyris and Schön's organisational learning theory. After a close reading of transcripts, to become familiar with the data, initial codes were generated to capture elemental concepts; these included such things as form verses function, drivers for change, and agency. It became clear from the codes that pedagogy was not a driving force in the decision to build lecture theatres; therefore, the collated codes were then refined into potential themes, which offered explanations for their construction. Themes were reviewed for coherence and distilled to identify essence and scope. Three final themes were developed: *post-pandemic and the creation of the sticky campus, the administrative tail wagging the pedagogic dog*, and *pedagogy, pragmatism, and the student experience*.

In order to better understand the espoused educational values of the organisations included in the study, a short textual analysis (Weber, 1990) of the educational strategy documents of all 16 institutions being discussed was conducted in NVivo. Firstly, 25 representative educational strategy documents were selected from an internet search, and a list of words compiled that described their approaches to learning and teaching. The educational strategy documents from the sixteen institutions being discussed were then searched for the same terms and those results shown in Table 1.

Post-pandemic context

To provide some context for UK higher education estates planning, at the time of the influential Robbin's Report (1963), which recommended rapid and significant expansion of higher education, there were 118,000 students in 18 universities. That number has since risen consistently, and currently stands at around 2,000,000 students in 160 universities. Many of the post-Robbins institutions had/have buildings dating from the 1960s and 1970s, and many of these are reaching end-of-life, adding to the pressure on teaching space. All the universities represented in this study reported increasing student numbers as a major driver of estates planning.

Since the pandemic, many HEIs have reported issues with attendance at lectures (Williams, 2022). While not the primary focus of this study, any discussion of university lecture theatres inevitably encompasses student attendance. Historically, attendance at lectures has ebbed and flowed (Lindberg, 2017). The last decade (or more) has seen declining attendance rates at lectures, possibly influenced by such things as the ready availability of lecture recordings and lecture slides (Otte, 2024). Additionally, many more students now have external demands on their time, such as jobs and family commitments (Grove, 2024). The pandemic appears to have accelerated the decline in attendance with academics regularly

posting pictures on social media of completely empty lecture theatres (e.g., Olusoga, 2022). The post-pandemic volatility of student recruitment and attendance has resulted in some of the building projects discussed (that were in the design phase), being reimagined, postponed, and in one case, cancelled.

After many years of continuous growth in student numbers, there is some evidence of the trend flattening off, or even reversing (MacGregor, 2023). However, the burden of falling student numbers will not be shared equally. Elite and Russell Group universities (the more prestigious institutions) continue to expand while those further down the league tables compete for a smaller pool of students (having already committed resources on the basis of increasing student numbers). The capricious nature of recruitment makes large capital investment particularly challenging for these universities. One UK university faced a '£30 million financial deficit in 2023 due to its extensive investment in expanding the campus despite decreasing student numbers and increasing costs' (Khoo et al., 2024), and many more are in similar financial difficulties (Wood, 2024).

Results and themes

The issue of espoused educational values are addressed in an analysis of the educational strategy documents; these results are followed by the themes.

Espoused educational values

A word search was conducted on the educational strategy documents for the institutions under discussion, and the results are shown in Table 1. The brackets indicate the context in which the words were used, and variants of the search term which were counted.

Table 1 Frequency of terms describing approaches to learning

Search term	Number of references in (16) institutional educational strategy documents
Lecture theatre(s)	0
Lecture(s)	1
Blended (learning)	13
Peer (learning)	2
Active (learning)	27
Collaborative (learning)	12
Innovative (teaching/learning)	110
Transformative learning	14
Social learning	2
(Teaching) Excellence	122
Research/evidence informed (learning and/or teaching)	22

As can be seen, across the educational strategy documents of all 16 institutions being discussed, there are many references to student-centred approaches to learning and teaching and only one reference to lectures.

The following extracts from educational strategy documents give an indication of the context in which the search terms appear. They are taken from the 25 representative strategy documents to preserve the anonymity of the institutions and participants in this study.

Each quote is taken from a different UK university educational strategy document:

Evidenced-based: 'We will create an environment that fosters evidence-based innovation in educational practice, thus building both individuals' and the institution's reputation for pedagogic leadership.'

Active: 'Experiential, active and discursive modes of delivery on all courses, including accessible, varied, authentic and inclusive means of assessment.'

Innovative: 'Through evidence-based innovative practice, our students will be immersed and connected within co-created learning environments that provide an excellent student experience and support the acquisition of the [hallmarks of the University] Graduate.'

Excellence: 'Every student experiences excellence in education, shaped around co-creation, social justice, activeparticipation, real-world approaches,digital pedagogies and multi-modalities, global outlook and research informed teaching.'

More formally, from an institutional perspective in UK and European higher education, the quality assurance processes are designed to guarantee student-centred approaches (Loughlin et al., 2021). The Bologna Process Communiqué from 2024 states: 'we need to ensure student-centred learning is a reality for all students, empowering individual learners through research-based learning, effective support and guidance and cross-disciplinary teaching approaches' ('Tirana Communiqué' 2024).

These results demonstrate an espoused approach to learning and teaching of student-centred pedagogies; they are considered further in the themes and general discussion which follow.

The first theme further develops the context for the institutions discussed in this study. The term 'sticky campus' appeared in the early 2010s and refers to the concept of creating an attractive and engaging environment on campus that encourages students to stay on site, even when they do not have classes. Strategies have included improving campus amenities, offering more on-campus activities and events, enhancing learning spaces, and providing resources and services that meet the needs of students (Harrop & Turpin, 2013).

Theme: Post-pandemic and the creation of the sticky campus

Although the interviews in this study were framed around large, fixed-seat lecture halls, the lingering effect of the pandemic has had an enormous impact on universities (Griffiths & Dickinson, 2024), particularly on attendance (Basken, 2023). This theme developed because the interviewees repeatedly rationalised decisions based upon post-pandemic behaviours in students, and the perceived *necessity* to create a vibrant campus atmosphere to lure them back; re-asserting their status as 'face-to-face' institutions, and promoting the campus experience with a renewed vigour:

> Actually, the way we've positioned ourselves […] very clearly, this academic year [is that] we are a campus university, and we are primarily a face-to-face provider of education. (pvc#3)

Creating a sticky campus, and particularly social learning spaces, were mentioned by most of the interviewees, often without differentiation from formal teaching spaces. These spaces have until recently occupied previously unused corridors or corners of buildings, but are now a deliberate part of any design considerations, and compete for space with formal teaching spaces and lecture theatres:

> That was a big thing at [my previous institution]. It's a big thing here too […] you don't just walk out of a lecture into the rain […] How do you enable them to when they come out of the lectures to do that peer learning nearby in a convenient way. […] It really is an extension of that learning process. (pvc#12)

An integral part of the sticky campus approach is to encourage students to attend in-person lectures. One PVC noted that as the result of positive experiences of online lectures during the pandemic, some academics had chosen to deliver all their lectures online *only* and that senior management were 'not thrilled about that, as we're an in-person university' (pvc#12). There are many motivations for wanting students to be on campus, including the sense of community that should develop (and happens to be one of the UK National Student Survey (NSS) criteria) along with social learning opportunities and a better overall student experience.

However, the impression given by some interviewees (from the lower end of the league tables), was that the threat now posed by stalling student recruitment and a lack of engagement with students on campus (including falling physical attendance at lectures) was in danger of becoming existential: 'there's no future for this university without being campus-based' (pvc#11). With overall student numbers declining slightly, the burden falls disproportionately on those institutions that can least afford it. If you define yourself as a campus-based university and cannot rely on the reputation of your institution to bolster numbers, the inability to attract students to campus could be a precursor to financial failure.

It is this sense of urgency that comes through when the PVCs talked of increasing student attendance at in-person lectures: 'engagement in some disciplines and attendance has been atrocious. I mean, *atrocious*!' (pvc#3). The most regularly cited rationale for the inclusion of large-scale lectures in the curriculum was 'social learning', which would obviously exist with most types of in-person teaching sessions. There was talk of attendance monitoring, incentives, and compulsion: 'students' needs some rules about attendance' (pvc#7), and yet there is little mention of creating engaging learning experiences, which have been shown to organically improve attendance rates (e.g., Hake, 1998).

Theme: The administrative tail wagging the pedagogic dog

One of the early questions in the interviews was 'how did the idea of a new lecture theatre become an agenda item for senior management?' In most cases, it originated from the administrative/support departments of Timetabling or Estates. (Timetabling is the department that is responsible for allocating rooms to academic staff for their teaching and publishing the resulting timetable for students).

Commissioning a large graduation/events space was common, although in *every* case, they were absorbed into the timetabling system and used for teaching. One PVC explained that 'one of the consequences [of expansion from a] teaching point of view is that the Great

Hall, which was designed as a concert space, ended up being primarily a teaching space. Because we didn't have anywhere else big enough' (pvc#8). The dual use as an entertainment/graduation/events space often compromises the design as a teaching space: 'Yeah, we've just gone straight to fixed-tiered. And that's because of the dual use […] it's not driven by pedagogy; it's driven by the need for the space to be used for […] concerts and dances and things like that' (pvc#2).

Those proposals originating from Timetabling (over half of the projects discussed) were entirely driven by increasing student numbers, and particularly the increasing cohort sizes. That is, the university had recruited bigger cohorts than could be accommodated in the existing teaching space: 'So, in fact it's just come up. In the timetable […] we can't quite fit some of our biggest classes now into the lecture theatres we've got' (pvc#4).

For Timetabling departments, the sum appears to be simple; if there are sufficient cohorts of a particular size, say 400, that cannot be accommodated in the existing estate, then a 400-seat lecture theatre is required. From that point, there were two primary routes taken. One was where the project went to an infrastructure steering group, often headed by, or including, the PVC education. The other was that it went straight to the COO.

Those projects headed by the COO were described as largely 'task and finish' oriented, with minimal academic consultation: 'I went to probably, six or seven project meetings [and the COO] managed it very tightly, [they] didn't allow us to speak' (pvc#9).

Those governed by a steering group tended to invite more views and discussion on the type of teaching space that should be created:

'It is very much a live debate, absolutely […] I mean the bigger camp is the traditional camp I would say, because it's easier to do what you've always done […] a fairly common outcome is that, you know, you replicate what you've done before. If you grow your student numbers by 20%, you want a 20% bigger room of exactly the same type you had before. And so that's where a lot of the conversations start' (pvc#12).

This idea of replicating 'traditional' spaces (but bigger) was pervasive; however, the educational implications of this remained largely unexamined. While every PVC mentioned having a discussion around 'whether large lectures are the future' (pvc#1), most came to a similar conclusion: 'We had that discussion […] of course, because we were going to invest [£10 s of millions] we felt we would need [them] as far out as we could see' (pvc#7). The 'traditional' view of university teaching including large-class lectures was not seriously challenged, and the discussions mentioned tended not to dwell on pedagogy. Thus, if the institutional commitments to student-centred learning appeared at all in these conversations, pragmatic and logistical 'needs' quickly came to dominate them.

The desire to avoid double teaching was a major consideration. However, one PVC saw the construction of more modest lecture halls as a way to drive pedagogical change, by curbing some of the huge cohorts consisting of many hundreds of students, thereby encouraging smaller groups, fewer lectures, and more seminars/tutorials:

'I never shy away from saying that I understand the problem that you're trying to solve is to avoid double teaching, but I don't think it's avoidable […] there are better ways of [teaching] you know, get rid of large modules […] don't create an operationalisation of the pedagogy where you require 950 students to be [in] the lecture. That's not a good experience' (pvc#9).

Some of the PVCs found it quite difficult to engage the senior management team with these building projects (other than as bold architectural statements to promote the

institution). Many faculty/college deans seemed oddly indifferent to the types of teaching space being created, with designs being 'nodded through' by senior management (coo#1). In his case, architects provided some options but there was, 'not much input from the institution' (coo#1). As a result, the buildings, which won design awards and were well received at the time, turned out to be less useful five years further down the line. The COO at another institution experienced similar frustration with their architect's preference for form over function, saying that within a few years their award-winning building's inflexible layouts made them 'unfit for purpose… [the spaces] didn't really work, because the teaching didn't match the space' (coo#2).

In many cases, the need of further large lecture theatres was raised by the timetabling department to resolve a logistical problem; in the absence of any strongly held views from senior academics, the steps involved built seamlessly to make the final decision seem self-evident.

Two linked governing variables become evident within this theme: the need to avoid double teaching and the need to balance the timetabling system for the largest cohorts. The default position of most institutions is that resources are made available to maintain those variables within acceptable limits: 'It's still not acceptable to recruit students and not have enough capacity for them to do the thing they think they're coming to do' (pvc#7).

Theme: Pedagogy, pragmatism, and the student experience

There are several strands that together highlight the tensions and trade-offs affecting the institutions approach to the student experience, and the balance of pedagogy verses pragmatism.

The PVCs comments suggested a genuine desire from every institution to provide an outstanding student experience. This tended to be quite high-level though, encompassing all aspects of the student journey, with learning and teaching only a small part of that journey; and lectures, an even smaller fraction of that: 'in terms of […] what education at university is, it's a massive […] narrowing to think about the lecture' (pvc#11). Contact hours often seemed to be viewed as an opportunity for students to engage with faculty and each other; with the teaching that takes place during 'in-person' sessions being almost incidental: 'the point of having large teaching spaces is, one, because you have to have enough capacity for the students […] and secondly, to give them those kind of convening opportunities where they all come together' (pvc#7).

All of the institutions involved in this study describe themselves as 'research intensive', and several PVCs mentioned that in their institutions, research was more highly valued than teaching: 'education is never dominant at [this university]' (pvc#4). This has a number of practical implications in terms of resource allocation and the priorities of academic staff: 'the revamp of the teaching space was a hard-earned negotiation [the PVC Research wanted a] research lab' (pvc#9). It is also a reality which acts as a driver for delivering the most contact hours with the least amount of academics' time.

All the PVCs in this study indicated that they aspired to student-centred teaching approaches and all the institutions provide a mix of teaching spaces including flat/flexible spaces designed to encourage interactive approaches. However, several acknowledged that the rise in massive cohorts was driving demand for large-fixed-seat lecture halls, which they were conflicted about: 'We were frequently getting feedback through the timetabling system that we didn't have enough big lecture spaces […] There was a fairly systematic push back on that [to the deans]

like a deliberate one to say, 'are you really sure that's what you want?' And every time we asked the question it came back. 'Yes, we need more of these [large lecture theatres]'' (pvc#6).

> I think probably everybody would love to move to lots of small group chitty chatty teaching. [Staff would] be with their student groups [and] get to know them […] How it used to be. [But it's] just not feasible and we don't have the money to invest in […] the staff you'd need. So, the pragmatic decision is we [lecture], teaching is obviously cheap as chips. [Staff] are getting an in-person hour with a lot of [students] at once (pvc#7).

Only two of the PVCs were actively adopting strategies to reduce large-class lectures through infrastructure design and policy measures. In other cases, there were occasionally deans or heads of schools who were advocating for student-centred approaches. However, most of the PVCs accepted large-class lectures as part of the educational landscape and concluded that: 'lectures are fine as part of the mix' (pvc#7).

> I think there's always this paradox or conflict that you run into with these discussions […] you know we're growing student numbers and the most effective and efficient way of delivering contact time to those students is through lectures […] irrespective of quality and how good that [lecturer] is. (pvc#1)

Here again, this view of education is pragmatic in the extreme; does it not matter how good the lectures are, so long as the students get their contact time? As Ashwin points out, 'measuring teaching quality by the number of teaching hours is like judging the quality of a novel by its number of pages' (2020, 52).

The main areas of concern for PVCs education are typically the NSS, TEF (UK government Teaching Excellence Framework) and resultant league tables. As neither the NSS or TEF capture or use metrics which discriminate between student- and teacher-centred approaches to learning and teaching, it is perhaps to be expected that the PVC's energies are directed towards those metrics that are measured such as student satisfaction, retention, attainment gaps, and employability: 'I think […] the student experience [is the] number one thing' (pvc#12).

Yet, these aspirations for a good student experience were rarely linked directly to learning and teaching. Towards the end of each interview, the participants were asked whether large lecture halls corresponded with their university's education strategy. After initially suggesting that their university had very few lectures, one went on to acknowledge a disconnect:

> And so… we've got a bit of a contradiction, haven't we? Because in one sense, we've been saying to them 'You need to make the lecture more interactive' [but then putting them in large lecture theatres…] it's going to take me a couple of years to untangle that contradiction, I suspect' (pvc#4).

For others, an incongruence was less apparent:

> 'From my perception […] we have very few lecture theatres. So, the whole [discussion about] lecture theatres [being] over [and] moving to [a] post-lecture theatres [education]. Well. We haven't got any anyway' (pvc#11).
> Note: Excluding labs and specialist spaces, this particular institution has 23 large-class fixed-seat lecture theatres, which represent 25% of centrally managed teaching spaces (57% of seating capacity).

Both of these PVCs were/are unaware of the scale of large-class teaching that takes place in their own institutions, which gives an indication of how teaching spaces feature within the institutional consciousness.

For some of the PVCs, there was no contradiction; in their view, they provide a mix of learning and teaching approaches, including some student-centred teaching, and the inclusion of large-class lectures is fine as part of their educational offering:

> I think there are still skills that you learn from the lecture. You know about listening and […] concentration and capturing information and so on […] And a lot of my colleagues feel quite strongly about that (pvc#4).

Revealingly, these arguments are not made in the education strategy, or in any other institutional documentation where they might be challenged, and the specific claims by the PVCs made here for transmissive lectures, are not supported by the literature (Bligh, 1972; Gonulal, 2020; Loughlin & Lindberg-Sand, 2023).

Academic freedom, and the somewhat amorphous lines of accountability in learning and teaching, means responsibility for enacting student-centred education within HEIs is often undefined. Hazy notions of student-centred learning are quickly swallowed up by the clear objectives and concrete outcomes of logistics and student satisfaction metrics.

The general discussion, which follows, further explores the themes and the theories-in-use that can be inferred from them.

Large-class teaching in (the theory of) action

The individual PVCs interviewed for this study varied widely in their views about the place of large class teaching within higher education; yet their institutions behaved in broadly the same way. Argyris and Schön's organisational theory suggests that behaviours can be described as *organisational* when 'individuals with different personalities behave in the same way; and people leave and new ones come into the organisation, yet the [behaviours] remain intact' (Argyris, 1999, 141). Thus, this discussion considers espoused theories and theories-in-use in the *institutional* context of commissioning large-class fixed-seat lecture halls.

The espoused theories of approaches to learning and teaching for these HEIs are clearly student-centred as can be seen in the references to student-centred approaches in the educational strategy documents (see Table 1). Teaching practice varies; yet, the available evidence suggests that teacher-centred transmissive teaching remains widespread (Gynnild et al., 2021; Loughlin, 2024; Loughlin & Lindberg-Sand, 2023; Schoepp, 2019; Stains et al., 2018), and is acknowledged by participants in this study: 'There's […] also quite a lot of appetite […] for didactic teaching, and [large-class lectures are] a very efficient and effective way to do it' (pvc#3). The PVCs offered some rationalisations for the inclusion of transmissive lectures; however, these stemmed primarily from personal preference and assumption, rather than pedagogical theory or research, and again, they do not appear in *any* strategy documents. Therefore, the theory-in-use is (at least partially) teacher-centred. To what extent can the frequently observed theory-in-use of transmissive teacher-centred approaches be explained in terms of Argyris and Schön's framework?

Evidence, which suggest Model I theory-in-use with, defensive routines, and the undiscussable, might include resistance to change; peer pressure; incongruous rewards

mechanisms; lack of robust and transparent policy evaluation; absence of policy discussion; abdication of responsibility, rationalisation, a sense of hopelessness, and denial (Argyris, 1999). Many aspects of these can be seen in the themes which were developed in this study.

The theme 'Post-Pandemic and the Creation of the Sticky Campus' highlights two important aspects of senior management thinking regarding infrastructure: (1) the normative status of large-class teaching, in that none of the PVCs separated out large-class lectures in their thinking from students being on campus; to an extent, the lectures were undiscussable (and invisible) even when asked about them directly; (2) it hints at the institutions educational philosophy (Park & Choi, 2014), in that the most important aspect of student learning was considered to be the social learning that takes place with their peers outside of lectures. In this view of higher education, students assume responsibility for their own learning (David et al., 2024). It also assumes a student who is academically equipped to take responsibility for their own learning, and with the diversification which accompanies massification—that is not always the case: 'many students do not respond well to having the freedom to make these decisions' (Clark, 2018, 992). More importantly, this expectation of students is not articulated in any of the educational strategy documents.

The theme, 'The Administrative Tail Wagging the Pedagogic Dog' is an example of institutional logistics driving infrastructure decisions to produce (possibly) unintended consequences. A series of small incremental steps result in the construction of a multi-million pound large fixed-seat lecture theatre for which the institution has made no conscious educational choice. A core function of a higher education institution is learning and teaching, yet responsibility for creating the physical spaces in which the teaching takes place appears often vacated by senior academic management: left to administrators, support services, and architects. The designs 'nodded through' by senior management (coo#1) affect the education of thousands of students for years to come.

The final theme 'Pedagogy, Pragmatism, and the Student Experience' focuses on the very real and difficult choices facing senior management. Only two PVCs were able to articulate the paradox of their espoused values and the theory-in-use of their teaching provision suggesting that for most, it has become undiscussable. Most institutions can point to where student-centred approaches take place but ignore the substantial amounts of transmissive teaching that occurs in large-class lectures.

One example of the Model I behaviour exhibited is the fear amongst academics, reported by several PVCs, that if they provide lecture recordings, students will not attend: 'and my colleagues will then start to demand that we make them' (pvc#4). In this case, the governing variable is the sanctity of the lecture, and demanding students attend to maintain the status quo, rather than exploring alternative paradigms which might be more appealing or effective for students in their learning.

Attendance is an issue that cuts across the themes; the PVC's claim that there is 'strong demand' from students for lectures (pvc#12). Yet, there are many concerns about a lack of attendance at lectures within higher education; reports of embarrassingly small numbers are now commonplace (Basken, 2023; Grove, 2024). The reality of 'academics […] sitting in a lecture theatre that holds 200 [with] 26 students' (pvc#3) does not seem to factor into the decisions to build additional large-class lecture halls. None of the PVC's institutions collected data on attendance rates. Therefore, the incongruence of 'strong demand' and 'atrocious' attendance remains unexamined. The only discussion of poor attendance in the public domain is generated by individual academics highlighting personal experiences. HEIs make little attempt to understand how many students attend non-compulsory lectures

and certainly do not engage in any public discussion on the topic. This minimises the risk of embarrassment but also limits the prospect of providing a better educational experience for those students choosing not to attend lectures.

In the introduction to *Teaching for quality learning*, Biggs laments that with the massification of higher education came diversification and class sizes 'that seem to preclude any but the same methods of teaching and assessing that aren't working' (Biggs, 1999, 2). And the argument for large class lectures is often made on economic grounds. However, 'the lecture method is not economic in terms of time or anything else, if it cannot achieve the required objectives, and this achievement is open to question' (Bligh, 1972, 19).

This paper does not argue for the efficacy of student-centred, compared to teachers-centred, approaches to learning and teaching. Instead, it explores the paradox of HEIs espoused theories of student-centred approaches to learning and teaching, and the institutional thinking which leads to the construction of vast fixed-seat lecture halls.

Most HEIs espoused theories of education and their theories-in use do not match. They cannot publicly discuss the educational and logistical issues associated with large-class lectures, because then they would have to acknowledge their existence, explain the paradox, and defend their inclusion in the curriculum. Large-class lectures then become undiscussable, and to a large extent hidden. And so, it would appear that, rather like an ill-fitting suit, the educational strategy documents of most institutions, 'fit where they touch'; that is, some innovative and research informed practice takes place, but very much more transmissive teacher-centred practice is undocumented and invisible.

Conclusion

The findings of this study underscore a surprising detachment from pedagogical intentionality in the decision-making processes concerning high-value capital projects such as large-class lecture theatres. None of the rationales presented by interviewees for the construction of these spaces explicitly articulated a deliberate educational preference for large-class lectures. Instead, decisions appeared to be driven more by pragmatic considerations, including the need to accommodate increasing student numbers and the desire to enhance the campus experience, encapsulated in the 'sticky campus'.

Argyris and Schön's distinction between espoused theories and theories-in-use revealed the tacit assumptions that guide institutional behaviour, highlighting a gap between the pedagogical ideals that institutions profess and the teaching spaces they create.

This study contributes to the discourse on the alignment between higher education's physical infrastructure and its pedagogical commitments. Engaging more deeply with the pedagogical implications of physical space design could enable institutions to better align their infrastructure decisions with their educational strategies, fostering environments that genuinely support the learning experiences they claim to promote. Future research could further explore the impact of learning space design on pedagogical practices and student outcomes, offering insights into the complexities of aligning physical space and approaches to learning and teaching in an era of rapid change and financial precarity.

Declarations

Ethics approval See attached file

Additional declarations for articles in life science journals that report the results of studies involving humans and/or animals
Not applicable.

Consent to participate See attached file.

Consent for publication (include appropriate statements
Not applicable.

Conflict of interest The author declares no competing interests.

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