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Activating innovative learning environments: How educator pedagogical framings shape student- and human-centred learning

Cassandra Colvin
Curtin University

Flavia-Elena Hatiegan, Maxine Mitchell
Edith Cowan University

Contemporary universities are increasingly investing in innovative learning environments (ILEs) to support student-centred approaches to learning and, more broadly, the aspirations of human-centred learning (HCL). While these environments are designed to promote collaboration, learner agency, and active participation, educators teaching in the same spaces often enact these pedagogical aspirations differently. This study examines how higher education educators interpret and activate the affordances of ILEs. Drawing on a constructivist, interpretive study, semi-structured interviews were conducted with 10 higher education educators who taught in replica ILE pilot spaces at an Australian university. Reflexive thematic analysis identified five interrelated continua representing pedagogical framings of teaching and learning: teacher as deliverer or facilitator, learner as recipient or agent, knowledge as transmitted or constructed, relationship as centralised or distributed authority, and student identity as generic or individual. Although participants consistently recognised the collaborative affordances of ILEs and expressed commitment to student-centred learning (SCL), the findings revealed two distinct enactments of SCL: one enacted for students and the other enacted with students. The study contributes an explanatory framework that suggests how the pedagogical potential of ILEs may be mediated not by spatial design alone, but by the pedagogical framings through which educators interpret and activate these environments.

Keywords: innovative learning environments, human-centred learning, student-centred learning, pedagogical framings, educator beliefs, higher education, qualitative

Introduction

Contemporary higher education is increasingly seeking to reposition learning around human flourishing, learner agency, and meaningful participation. This shift is reflected in the growing prominence of *human-centred learning* (HCL), which reframes education beyond knowledge transmission towards approaches that recognise the whole person and prioritise relational, ethical, and developmental dimensions of learning (Selkrig et al., 2023; Shaheed, 2026). Within this broader paradigm, *student-centred learning* (SCL) represents a key pedagogical enactment of HCL, emphasising active participation, learner agency, collaboration, and the co-construction of knowledge between educators and students (Bremner, 2021; Capone, 2022).

Universities have increasingly sought to realise these aspirations through substantial investment in *innovative learning environments* (ILEs). Designed to support active, collaborative, and SCL, ILEs combine flexible spatial design with integrated technologies and are intended to redistribute participation, foster interaction, and enable more responsive pedagogical practices (Byers et al., 2018b; Mahat & Loh, 2024). Rather than functioning as passive containers for teaching, ILEs are designed to act as pedagogical environments that encourage educators and students to engage in more participatory and collaborative approaches to learning (Franz, 2019).

However, the relationship between space and pedagogy is neither deterministic nor automatic. While ILEs may be intentionally designed to support SCL, their pedagogical potential depends on how educators interpret and activate the affordances these environments provide. Previous research has consistently shown that educators' beliefs, pedagogical orientations, spatial competence, and readiness for change shape whether,

and how, the intended benefits of ILEs are realised (Bradbeer et al., 2019; French et al., 2020). Consequently, identical learning environments may produce markedly different teaching and learning experiences depending on the educator.

Although a substantial body of research has examined the design, implementation, and evaluation of ILEs, less attention has been given to the underlying pedagogical framings through which educators interpret these environments. In particular, little is known about how educators' understandings of students, knowledge, teaching, and learning shape the ways they recognise and activate the affordances of ILEs (Bradbeer et al., 2019; Mahat & Loh, 2024). Understanding these underlying framings is important because they influence not only the pedagogical practices enacted within these spaces, but also the extent to which the student-centred aspirations underpinning both ILEs and HCL are realised.

The purpose of this study is to examine how higher education educators interpret and activate the affordances of ILEs for SCL, and to explore the underlying pedagogical framings – the interpretive constructions through which educators make sense of pedagogy and their pedagogical choices – that shape these interpretations. Drawing on interviews with 10 higher education educators who taught in ILE pilot spaces at a medium-sized Australian university, the study addresses the following research questions:

1. How do higher education educators interpret and activate the design features of ILEs for student- and human-centred learning?
2. What underlying pedagogical framings of students, pedagogy, and knowledge shape how educators utilise ILEs?
3. How do these differing pedagogical framings reveal the boundaries between teacher-directed and student-centred approaches to active learning?

Literature review

HCL has emerged as an influential paradigm for rethinking the purposes of contemporary education, shifting attention beyond knowledge acquisition and workforce preparation towards human flourishing, learner agency, and the holistic development of the individual (Selkrig et al., 2023; Shaheed, 2026). Rather than viewing education primarily as the transmission of disciplinary knowledge, HCL emphasises learning as a relational, developmental, and ethical endeavour that recognises the learner as a whole person. Within higher education, this shift reflects growing recognition that graduates require not only disciplinary expertise, but also the capacity to think critically, collaborate effectively, navigate complexity, and continue learning throughout their lives.

SCL represents a principal pedagogical enactment of HCL. Drawing on HCL tenets, SCL repositions students as active participants in learning through approaches that promote learner agency, collaboration, authentic learning experiences, and the co-construction of knowledge between educators and students (Bremner, 2021; Capone, 2022). Rather than positioning educators primarily as transmitters of knowledge, SCL emphasises facilitation, dialogue, and the design of learning experiences that enable students to actively construct understanding. While these principles are widely accepted within higher education, the ways in which SCL is interpreted and enacted vary considerably across disciplines, institutional contexts, and individual educators (Bremner, 2021). While SCL describes the pedagogical practices through which learning is repositioned around the student, HCL operates at a deeper level, concerned with the values, relationships, and orientations that give those practices their purpose. SCL without HCL can become a set of techniques enacted without the relational, ethical, and dignity-centred commitments that HCL requires. It is in this sense that SCL is a necessary but not sufficient condition for HCL.

One institutional response to these pedagogical aspirations has been the growing investment in learning spaces commonly referred to as ILEs. Despite this growth, the literature has yet to converge on a precise definition or consistent operationalisation of their features (OECD, 2013). For this study, we operationalise ILEs as learning spaces that intentionally combine flexible spatial layouts with integrated digital technologies to encourage collaboration, active participation, learner interaction, and greater pedagogical flexibility (Byers et al., 2018a, 2018b; Mahat & Loh, 2024). Their designs align with SCL principles through features such as

multiple presentation points, collaborative workspaces, distributed displays, writable surfaces, and adaptable furniture which are intended to reduce the dominance of traditional front-of-room teaching and create environments that better support active, collaborative, and socially situated learning (Franz, 2019).

However, research consistently demonstrates that the pedagogical benefits of ILEs cannot be attributed to physical design alone. While these environments support SCL, their educational potential depends on how educators recognise, interpret, and activate their affordances (French et al., 2020). Studies have identified a range of factors influencing educators' use of ILEs, including pedagogical beliefs, environmental competencies, professional learning, confidence, self-efficacy, and readiness to adopt new approaches to teaching (Bradbeer et al., 2019; French et al., 2020; Mahat & Loh, 2024). Collectively, this body of work suggests that educators teaching in the same environment may enact very different pedagogical practices despite having access to identical spatial and technological resources.

While previous research has established that educators' beliefs and capabilities influence teaching in ILEs, less attention has been paid to the underlying pedagogical frameworks through which educators interpret these environments (Bradbeer et al., 2019; Mahat & Loh, 2024). In particular, relatively little is known about how educators' understandings of students, knowledge, teaching, and learning shape the ways they perceive and activate the affordances of ILEs. Understanding these underlying framings is important because they help explain why educators working in the same learning environment, and often expressing similar commitments to SCL, may nevertheless employ different pedagogical practices.

This study addresses that gap by examining how higher education educators interpret and activate the affordances of ILEs, and by exploring the underlying pedagogical framings that shape those interpretations. Rather than evaluating the effectiveness of ILEs as learning spaces, the study seeks to better understand the pedagogical orientations through which these environments are understood and enacted in practice.

Methodology

This study adopted a constructivist, interpretive methodology to explore how higher education educators understand and make meaning of teaching in ILEs. Rather than seeking to measure observable outcomes, this study examined educator's lived experiences and the pedagogical meanings they attribute to these environments, recognising that these framings shape how the affordances of ILEs are perceived and enacted.

Site and participants

The research was conducted in two full-scale replica ILE pilot spaces developed to mirror the design, technology, and pedagogical intent of the university's new campus teaching spaces prior to its opening. The pilot spaces comprised a Learning Space and a Digital Learning Space, providing educators with authentic teaching experiences in environments representative of those planned for the new campus. Both spaces incorporated design features intended to support active and collaborative learning, including flexible layouts, multiple writable surfaces, integrated audio-visual technologies, automated voice-lift microphones, Microsoft Teams capability, and distributed presentation points. The Learning Space featured movable furniture that enabled rapid reconfiguration for different learning activities, while the Digital Learning Space incorporated fixed collaborative learning pods with shared interactive displays that supported both educator and student screen sharing.

Ten higher education educators from three disciplines (business and law, humanities, and performing arts) participated in the study. Participants were invited on the basis of direct teaching experience in these replica pilot spaces, ensuring that all accounts were grounded in authentic teaching practice. Ethics approval for the research was granted by the institution the research was located in.

Data collection

Data were generated through semi-structured interviews organised around three complementary analytical lenses: affect, behaviour, and cognition. These dimensions reflect psychological conceptualisations of

engagement as involving emotional, behavioural, and cognitive aspects, and were used here as a simple framework for eliciting different dimensions of educators' experiences of teaching. Consistent with the constructivist orientation of the study, the interviews recognised that educators' teaching practices are shaped not only by what they do, but also by the beliefs, experiences, and emotions they bring to the teaching context. The three lenses therefore guided the interview questions but were not used as predetermined coding categories; subsequent coding and analysis remained inductive.

Interview questions were organised across nine thematic areas, progressing from professional identity and conceptions of teaching through to pedagogical practice, relationships with students, experiences of teaching in ILEs, active learning, assessment, and future teaching aspirations. This structure enabled participants' broader pedagogical framings to be understood before exploring how these informed their experiences within the ILEs. Questions addressing affect explored educators' feelings towards teaching in the spaces; behavioural questions examined the learning activities, strategies, and teaching approaches they employed; while cognitive questions explored their understandings of learning, knowledge, student-centred teaching, and educator-student relationships. All interviews were audio-recorded and transcribed verbatim.

Data analysis

Analysis focussed on examining how educators interpreted and activated the affordances of ILEs (research question 1), and the underlying pedagogical framings shaping those interpretations (research questions 2 and 3). Data were analysed using Braun and Clarke's (2006) six-phase reflexive thematic analysis approach, selected for its capacity to move beyond descriptive accounts towards interpretation of the underlying meanings shaping participants' experiences. Consistent with the constructivist orientation of the study, the analysis examined both the semantic content of participants' accounts and the latent pedagogical framings underpinning those accounts. The reflexivity of this approach lay in our explicit recognition of our positioning as educators embedded in assessment reform, which we engaged as an analytic resource in generating themes. Through iterative analysis and discussion with peers, we interrogated our readings to ensure that this positioning informed, rather than narrowed, our interpretations.

Initial inductive coding of educator accounts generated 187 codes capturing both descriptive observations (e.g., technology use, room features, learning activities) and more conceptual ideas (teaching, learning, relationships, knowledge, and student engagement). For the purpose of this process, a code was operationalised to be a brief descriptor of a feature in the data. These codes were progressively refined into broader conceptual categories. This process involved merging and aligning codes on the basis of their semantic and conceptual similarity. Twenty three categories were generated, including teaching essence, importance of relationship, student inclusion, and ILE affordances. The data within these categories was further scrutinised to determine where data were largely congruent or divergent. Our motive was to glean where educators' accounts and understandings qualitatively differed, and explore if and how those differences related to educator practice in ILEs. As such we intentionally sought to identify conceptual categories that revealed a stretch in educator accounts. This process generated five thematic continua representing five distinct elements of pedagogical framings across the dataset. These presented not as distinct bifurcations, but as continua of positions, practices, and understandings.

Findings

Research question 1: How do higher education educators interpret and activate the design features of ILEs for student- and human-centred learning? Across the sample, educators consistently described the ILEs in ways that aligned with the principles of SCL. Regardless of discipline or teaching experience, participants recognised the environments as supporting active learning, collaboration, relationship-building, and responsiveness to students' learning needs. These pedagogical affordances were not discussed as isolated features of the rooms, but as integral to how teaching and learning could be enacted within them.

This orientation was most evident in educators' understandings of active learning. Every participant readily described active learning as requiring students to engage with ideas through application, collaboration, discussion, or authentic problem-solving rather than passive reception of information. Participants referred to

approaches such as problem-based learning, role play, peer discussion, gallery walks, collaborative problem-solving, and hands-on learning activities as examples of how students actively constructed understanding within the ILEs. While the specific strategies varied, the underlying commitment to active participation was consistent across the dataset.

Educators also recognised the physical and technological affordances of the ILEs as supporting collaborative learning. Flexible furniture, shared tables, distributed whiteboards, collaborative technologies, and multiple display points were frequently discussed as enabling students to work together, share ideas, and make learning visible. As one participant explained, the room provided "dedicated working stations...beneficial for group work activities" (P7), while another observed that the layout meant "no one was head of table and... people seemed to share a little bit better" (P11). Similarly, the ability for students to share work across pod displays was valued because it enabled peer learning and immediate feedback: "Other students looking at someone else's work thinking, 'Oh yeah, we've forgotten to do this'. They had a chance to rectify it" (P4).

For many participants, these collaborative affordances strengthened social connection. Group activities, discussion, and shared problem-solving were seen not only as improving learning, but also as creating opportunities for students to develop relationships and a sense of belonging. Several educators described the spaces as encouraging conversation more naturally than traditional classrooms, while one participant suggested the pod configuration itself promoted communication because "you're supposed to communicate" (P10).

Across these accounts, educators consistently interpreted the physical design and teaching practices of the ILEs as mutually reinforcing. Rather than describing room features independently of pedagogy, participants moved fluidly between discussing spatial affordances and the learning activities those affordances enabled, suggesting they understood the environments as pedagogical resources rather than simply physical settings.

Despite this shared recognition of the affordances of ILEs, educators differed markedly in how they interpreted the significance of the learning environment for their own teaching. Three distinct patterns of pedagogical activation were evident. For some, the room was experienced as an active pedagogical partner; for others, it was a valuable resource that supported an already established pedagogy; while a third group regarded the environment as largely incidental to their teaching practice. These are discussed in turn.

Pattern 1: The room as a pedagogical partner. For one educator, the ILE was inseparable from the pedagogical experience itself. Rather than viewing the room as a place in which teaching occurred, the participant described it as actively shaping relationships, learning, and participation. Compared with traditional classrooms, the ILE represented "two different worlds" (P10), creating an organic learning community where knowledge emerged collaboratively rather than being delivered from the front of the room. "There is not someone standing at the front knowing everything...it's almost like some kind of amoeba...it's organic...it's moving and breathing" (P10). Within this pedagogical framing, the environment itself became part of the learning process rather than simply supporting it.

Pattern 2: The room as a pedagogical resource. A larger group viewed the ILE as a highly valuable resource that extended existing teaching practices without fundamentally changing them. Participants valued the flexibility of the furniture, collaborative technologies, and opportunities to share student work because these features enhanced activities they already considered important. For one educator, the capacity for students to compare and discuss each other's work was "really validating" (P4), while another described the room as providing "more tools in my toolkit to engage the students" (P5). Here, the pedagogical value of the space lay in expanding the educator's repertoire rather than reshaping their underlying approach to teaching.

Pattern 3: The room as a pedagogical backdrop. A third group regarded the physical environment as having relatively little influence on their teaching. While recognising the collaborative affordances of the ILEs, these educators viewed effective teaching as largely independent of the learning space itself. One participant suggested their teaching would remain "the same if we ran it in a plane or...a submarine" because "the functionality of the space didn't really change how I delivered it" (P11). Another similarly argued that "regardless of the environment, you just teach" (P9). Even where educators valued the design of the room,

they frequently located successful teaching within the educator rather than the environment. Perhaps the most revealing example came from an educator who described the ILE as "the environment which I was waiting for" because it aligned closely with an already student-centred philosophy, yet simultaneously concluded that "my teaching style is the same...the pilot space actually came to me as the solution to everything I was already doing" (P6). The room was embraced as the ideal environment, while also being considered largely unnecessary for achieving those pedagogical outcomes.

Collectively, these findings reveal a notable tension. While educators consistently recognised the student-centred affordances of ILEs, they differed substantially in how they interpreted and activated those affordances within their own teaching. These differences could not be explained by the physical environment itself, nor by educators' confidence or familiarity with the technology. Rather, they suggested deeper differences in how participants understood teaching, learning, knowledge, and relationships. To explore these differences, the next section examines the pedagogical framings underpinning educators' accounts.

Research question 2: What underlying pedagogical framings of students, pedagogy, and knowledge shape how educators utilise ILEs? Research question 1 demonstrated that educators consistently recognised the student-centred affordances of ILEs but differed considerably in how they interpreted the value of those affordances for their teaching. These differences suggested that variation could not be explained by the physical learning environment itself, but by deeper pedagogical framings through which educators understood teaching, learning, knowledge, relationships, and students.

Analysis revealed five interrelated thematic continua that collectively describe these pedagogical framings:

- teacher as deliverer ↔ facilitator
- learner as recipient ↔ agent
- knowledge as transmitted ↔ constructed
- relationship as centralised authority ↔ distributed
- student identity as generic ↔ individual

These thematic continua, and the insight they offer into the differing ways educators activated the pedagogical affordances of ILEs, are discussed in turn.

Thematic continua 1: The teacher as deliverer or facilitator. The first continuum concerned how educators positioned themselves within the learning process. At one end, educators primarily described their role as organising, delivering, and guiding students through disciplinary knowledge. Even where teaching was highly interactive, the educator remained the principal authority directing the learning experience. One participant described restructuring an entire unit to efficiently "deliver all the teaching components" before using class time for activities (P8). Another more nuanced account described a continual "back and forth" with students, yet one in which the educator determined the questions, evaluated responses, and guided the direction of discussion (P11). While active learning strategies featured prominently, the educator remained the central organiser and authority within the learning process. By contrast, other educators positioned themselves as facilitators who worked alongside students in constructing understanding. One participant explicitly rejected the role of the "sage on the stage," instead describing their role as helping students "co-create or co-construct knowledge" (P2). Another emphasised reciprocity, explaining, "I'm always learning from them" (P10). Rather than directing learning, these educators described creating conditions in which students increasingly shaped their own learning experiences. Across this continuum, differences lay not in educators' commitment to SCL, but in how they understood their role in enabling it.

Thematic continua 2: The learner as recipient or agent. Closely related to educators' own roles was how they positioned students within the learning process. At one end of the continuum, students were framed primarily as recipients of disciplinary knowledge. Although educators frequently employed active learning strategies, students' agency largely resided in applying knowledge that had already been defined by the educator. One participant described teaching as providing students with "the ingredients" from which they would subsequently "make the cake" (P5), while another emphasised the challenge of delivering "the amount of information...we've got to impart" within limited class time (P4). Here, active learning supported students in applying and consolidating educator-defined knowledge. At the other end of the continuum, students were framed as active agents in constructing learning. Participants emphasised learner choice, voice, and

ownership, describing opportunities for students to select authentic scenarios, contribute their own perspectives, and shape learning experiences in personally meaningful ways. As one educator explained, students were encouraged to choose scenarios that "resonated" with them (P1), while another valued students "putting their voice in it...doing it their way" (P10). Across accounts, learner agency ranged from applying educator-defined knowledge to actively influencing the direction and meaning of learning itself.

Thematic continua 3: Knowledge as transmitted or constructed. The third continuum concerned how educators conceptualised knowledge itself. For some participants, knowledge was understood as relatively fixed and disciplinary, residing primarily with the educator before being communicated to students. Learning involved acquiring, understanding, and applying established concepts and information. Others framed knowledge as something constructed through dialogue, interaction, and shared inquiry. Rather than transmitting knowledge, these educators described learning as a collaborative process in which both educators and students contributed to the development of understanding. One participant described learning as "sharing your perspective and coming up with a shared piece of knowledge where the lecturer gains understanding as well" (P5), while another characterised learning as "organic...moving and breathing" rather than something possessed by the teacher alone (P10). The distinction lay not in whether disciplinary knowledge mattered, but in whether knowledge was primarily delivered to students or developed with them.

Thematic continua 4: Relationship as centralised or distributed authority. The fourth continuum concerned educator-student relationships and the distribution of authority within learning. Some educators retained primary responsibility for directing learning, using questioning, movement, and classroom organisation to monitor participation and maintain control. Even highly collaborative learning activities remained largely educator-directed. Others described relationships characterised by trust, reciprocity, and shared responsibility. Authority was intentionally distributed through learner choice, collaborative decision-making, and flexible participation. Rather than directing learning, these educators sought to create conditions in which students exercised increasing ownership over their learning. Across the continuum, relationships ranged from maintaining educator control over learning processes to enabling students to participate more fully in shaping those processes.

Thematic continua 5: Student identity as generic or individual. The final continuum concerned how educators understood the diversity of students within their classrooms. While all participants acknowledged that students differed in some way, the depth at which those differences were recognised varied considerably. Some educators described diversity primarily in broad demographic or behavioural terms, acknowledging that students had "different needs" (P9) or varying personalities, yet largely approaching the class as a collective group. Others described students as distinct individuals whose learning was shaped by different experiences, aspirations, motivations, and circumstances. These educators spoke about adapting teaching to individual learners, providing one-on-one support, recognising different rates of development, and responding flexibly to students' preferences and needs. As one participant reflected, teaching was "always adjusting...based on who I have in the classroom" (P6). Several also described recognising students beyond their academic performance, acknowledging the broader personal circumstances influencing their engagement with learning. Across this continuum, differences lay in whether educators primarily understood students as members of a cohort or as individuals whose identities and experiences shaped how learning should be designed and supported.

Although presented separately for analytical purposes, the five continua did not operate independently. Educators who framed themselves as deliverers of learning also tended to position students as recipients of knowledge, conceptualise knowledge as transmitted, maintain greater control within educator-student relationships, and speak about students in more generic terms. Conversely, educators who positioned themselves as facilitators more frequently viewed students as active agents, understood knowledge as constructed, emphasised enabling relationships, and recognised students as individuals with diverse identities, experiences, and learning needs. These patterns suggest that differences in how educators interpreted and activated the affordances of ILEs were underpinned by broader ways of understanding teaching, learning, knowledge, and relationships. Research question 3 builds on these findings by examining how these pedagogical framings distinguish different enactments of SCL.

Research question 3: How do these differing pedagogical framings reveal the boundaries between teacher-directed and student-centred approaches to active learning? Taken together, the findings from research questions 1 and 2 reveal an important distinction in how educators enacted SCL within ILESs. While participants consistently recognised the collaborative affordances of ILEs and expressed commitment to active, SCL, the five pedagogical continua revealed marked differences in how those aspirations were interpreted and enacted in practice.

Across the dataset, educators shared a common language of SCL. They described learning as active, collaborative, authentic, and relational. Yet beneath this apparent consensus lay different pedagogical framings of students, knowledge, teaching, and educator-student relationships. These framings shaped not only how educators understood SCL, but also how they activated the affordances of the learning environment. To further illustrate this, we focus on three aspects of pedagogical practice consistently found to reveal these differences: how educators moved within the learning environment, how they questioned students, and how they positioned disciplinary knowledge during learning activities.

Movement within the learning space reflected different pedagogical intentions. For some educators, movement enabled monitoring, oversight, and maintaining awareness of student participation. The room's openness was valued because it allowed educators to observe students' engagement and progress. For others, movement represented participation rather than surveillance, creating opportunities to work alongside students, listen to conversations, and become part of the collaborative learning process.

Similarly, questioning served different pedagogical purposes. Some educators primarily used questioning to check understanding and confirm whether students had correctly interpreted disciplinary concepts. Others used questioning to extend students' thinking, invite alternative perspectives, and support collaborative knowledge construction. While both approaches actively engaged students, they reflected different assumptions about the role of dialogue in learning.

Differences were also evident in how disciplinary knowledge was positioned during learning activities. For some educators, active learning provided opportunities for students to apply, practice, and consolidate knowledge that had already been established. For others, active learning became the mechanism through which knowledge itself was explored, negotiated, and constructed collaboratively between educators and students. Collectively, these practices suggest that the distinction between teacher-directed and student-centred learning does not lie simply in the use of active learning strategies. Across the dataset, all educators employed collaborative activities, discussion, authentic tasks, and opportunities for student participation. Rather, the distinction lay in the pedagogical framings through which those strategies were enacted.

The findings therefore suggest two distinct enactments of SCL. In the first, SCL is enacted for students. Educators intentionally design engaging, collaborative, and active learning experiences while retaining primary responsibility for knowledge, decision-making, and the direction of learning. In the second, SCL is enacted with students. Educators position students as active partners in shaping learning by sharing responsibility for knowledge construction, distributing aspects of authority, and enabling greater learner agency.

A reminder that these enactments should not be interpreted as binary categories or mutually exclusive pedagogies. Rather, they represent different pedagogical framings through which educators interpreted and activated the affordances of ILEs. Both enactments align with the broad aspirations of SCL; however, they differ in how they position knowledge, authority, relationships, learner agency, and ultimately the role of the educator within the learning process.

Discussion

This study sought to understand why educators teaching in the same ILEs, and expressing similar commitments to SCL, enacted those environments in markedly different ways. While participants consistently recognised the collaborative affordances of the learning spaces and described teaching using the language of active, collaborative, and SCL, the findings revealed considerable variation in how those affordances were interpreted and activated. Rather than being explained by the physical environment itself, these differences reflected

underlying pedagogical framings through which educators understood students, knowledge, teaching, and educator – student relationships.

At first glance, this finding appears paradoxical. All participants valued active learning, collaboration, and learner engagement, and all recognised the pedagogical possibilities afforded by the ILEs. Yet beneath this apparent consensus lay two distinct enactments of SCL. Some educators primarily enacted SCL for students, designing engaging learning experiences while retaining authority over knowledge and decision-making. Others enacted SCL with students, sharing responsibility for knowledge construction and enabling greater learner agency. The distinction was therefore not whether educators valued SCL, but how they interpreted and enacted it.

This finding helps explain an ongoing challenge within the SCL literature. Although SCL is widely promoted across higher education, it remains an inherently multidimensional construct that is interpreted in different ways (Bremner, 2021). As Bremner (2021) and Schweisfurth (2013) argue, SCL encompasses multiple dimensions, including active participation, learner agency, relationships, motivation, and conceptions of knowledge. Consequently, educators may legitimately identify as student-centred while emphasising different dimensions in practice. Our findings support this interpretation, suggesting that educators were not inconsistently applying SCL but calibrating their practice according to different pedagogical framings.

The five continua identified in this study provide an explanatory framework for understanding these differing enactments. Rather than representing independent characteristics of teaching, the continua formed coherent patterns across participant accounts. Educators who positioned themselves primarily as deliverers of learning also tended to frame students as recipients, knowledge as transmitted, relationships as more centralised around educator authority, and students as members of a cohort. Conversely, educators who positioned themselves as facilitators more frequently framed students as active agents, knowledge as constructed, relationships as enabling, and students as individuals with diverse identities and learning needs. Together, these pedagogical framings shaped how educators interpreted and activated the affordances of the ILEs.

Importantly, these findings suggest that the pedagogical potential of ILEs may remain pedagogically latent until interpreted and enacted by educators: the same learning environment will support markedly different educational experiences depending on the pedagogical framings educators bring to their teaching. This finding extends previous research that has highlighted the importance of educator beliefs, efficacy, and preparedness in ILE enactment (Bradbeer et al., 2019; French et al., 2020; Mahat & Loh, 2024) by demonstrating that it is the broader pedagogical framings underpinning those beliefs that shape how learning environments are activated in practice.

These findings also have important implications for professional learning within higher education. Much professional development associated with ILEs focuses on developing educators' confidence with technologies or familiarity with room features. While these capabilities remain important, our findings suggest they are unlikely to be sufficient on their own. Supporting educators to teach effectively in ILEs also requires opportunities to critically examine the pedagogical framings through which they interpret SCL, educator-student relationships, and knowledge itself. Professional learning may therefore be most effective when it supports not only new teaching practices, but also critical reflection on the assumptions that shape those practices.

Finally, the study contributes to broader discussions of HCL. Scrutinising educator beliefs and practices through the lens of SCL allowed the centrality of HCL tenets in shaping educator practice in ILEs to be revealed. Educational environments are not created solely through the design of physical spaces or the adoption of active learning strategies but mediated by educators' pedagogical framings and interpretations of learner agency, knowledge, relationships, and the role of teaching itself, all constructs underpinning HCL education. Understanding these pedagogical framings therefore provides an important foundation for realising the broader ambitions of HCL within contemporary higher education.

Conclusion

ILEs are increasingly being adopted to support student-centred and human-centred approaches to learning. This study demonstrates that the pedagogical potential of these environments is not determined by spatial design alone, but by how educators interpret and activate their affordances.

Drawing on interviews with higher education educators teaching in replica ILE pilot spaces, the study identified five pedagogical continua that appear to explain differing enactments of SCL. While all educators recognised the collaborative affordances of the learning environments and expressed commitment to SCL, they differed in how they positioned students, knowledge, teaching, relationships, and learner identity. These pedagogical framings gave rise to two distinct enactments of SCL: one enacted for students and the other enacted with students.

Although the study is limited by its small sample size, it contributes an explanatory framework for understanding why educators working in the same learning environments may activate those environments differently. More broadly, it suggests that realising the aspirations of both SCL and HCL requires attention not only to the design of learning environments, but also to the pedagogical framings through which educators interpret and enact them.

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The Future is Connection:

Collaboration, Creativity and Compassion in a Digital Society

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