

REHUMANISING TEACHING INNOVATION IN HIGHER EDUCATION: A HUMAN-CENTRED FRAMEWORK FOR PEDAGOGY, HUMAN AGENCY AND RESPONSIBLE AI

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Abstract: *In higher education, teaching innovation is often equated with digital adoption, obscuring the pedagogical and human conditions that make educational change meaningful. This conceptual paper develops a Human-Centred Teaching Innovation Framework through purposive theory synthesis of foundational scholarship, research reviews, empirical studies and policy guidance. The synthesis is interpretive rather than a systematic review or bibliometric analysis. Six interdependent dimensions are distinguished by their functions: pedagogical purpose sets the evaluative direction; educator capability, student agency, ethical technology use and assessment authenticity govern enactment and evidence; and institutional support enables and sustains implementation. The proposed contribution is not the discovery of six new constructs but their role-differentiated alignment, including explicit attention to tensions between AI-enabled efficiency, learner agency and credible evidence of learning. The framework advances six conceptual propositions for future empirical assessment and offers implications for teaching and assessment in accounting, finance and business education.*

Keywords: *Teaching Innovation; Higher Education; Digital Pedagogy; Generative Artificial Intelligence; Student Agency; Authentic Assessment*

Introduction

Background and Context

Higher education teaching is no longer limited to transferring disciplinary knowledge from teacher to student. Digital platforms, artificial intelligence (AI), shifting student expectations and a growing emphasis on universities producing graduates with critical thinking skills, agility in adapting to new technology and a sense of responsibility in complex professional settings are influencing both physical classrooms and online and blended learning environments. In this context, innovation in teaching has emerged as a key institutional priority. However, the term is often misapplied, and innovation is frequently equated with new applications, learning management systems, gamification, online content or generative artificial intelligence (GenAI). The presence of such developments does not automatically improve learning, although it may support teaching.

Teaching practice is educationally innovative when it has the potential to solve a meaningful learning problem or enhance the quality, relevance and integrity of the learning experience. A recorded lecture can enhance access without elevating learning; a digital quiz can increase interaction without fostering critical thinking; a digital quiz can support brainstorming or explanation, while raising concerns about over-reliance, misinformation, privacy and academic integrity with GenAI. Recent reviews show that AI can offer educational benefits while also generating pedagogical, ethical and implementation challenges, reinforcing the need to evaluate technology using educational rather than technological criteria (Garzón et al., 2025; Ogunleye et al., 2024).

This issue is particularly relevant to accounting, finance and business education, where professional practice increasingly incorporates digital platforms, analytics, automation and AI-supported decision environments. Contemporary accounting-education research identifies pedagogy, competencies and ethics as major research streams and calls for greater attention to technology-enabled learning (Cao et al., 2024). Recent evidence also shows that accounting students already use GenAI regularly for difficult concepts and accounting-information-system tasks, while remaining concerned about the accuracy, bias and currency of generated outputs (Zhou & Luo, 2025). Assessment research in accounting further suggests that GenAI performs more reliably on lower- to mid-order tasks than on complex higher-order professional reasoning, reinforcing the need to preserve judgement, verification and defensible reasoning in curriculum and assessment design (Tharapos et al., 2025). The educational challenge is therefore not simply to expose students to new technologies, but to develop professional judgement, ethical reasoning, evidence-based decision-making and credible demonstrations of individual learning.

Problem Statement and Conceptual Gap

Although higher education institutions increasingly promote innovation in teaching and learning, many initiatives remain fragmented and tool driven. Educators may be encouraged to adopt new platforms or AI applications without sufficient time, pedagogical preparation or assessment support. Students likewise differ in digital access, confidence, language ability and capacity for independent learning. When these conditions are overlooked, innovation can

become performative rather than transformative and may unintentionally widen learning inequalities.

A deeper conceptual problem concerns the level of explanation offered by the available perspectives. TPACK specifies how technological, pedagogical and content knowledge intersect in teaching decisions (Koehler et al., 2013), and DigCompEdu maps digital competences across educators' professional and instructional responsibilities (Redecker, 2017). Neither is designed primarily to explain the combined conditions under which learners retain agency, AI use remains ethically governed, assessment provides trustworthy evidence and institutional arrangements sustain the innovation. Conversely, engagement and agency scholarship centres learner participation (Kahu, 2013; Stenalt & Lassesen, 2022); authentic assessment specifies the qualities of performance evidence (Gulikers et al., 2004); and institutional adoption research explains organisational drivers and constraints (Porter & Graham, 2016). These perspectives can accommodate several of the proposed dimensions and are not intrinsically incompatible with integration. The narrower gap is that none of these cited models, considered individually and within its original explanatory purpose, specifies how all six functions should be aligned and evaluated together in AI-enabled higher education. The proposed contribution is therefore a cross-framework organising logic, not a claim that prior scholarship ignored these concerns.

The rapid expansion of GenAI makes this fragmentation more consequential. UNESCO (2023) calls for a human-centred approach that protects agency, inclusion, equity and privacy, while assessment scholars argue that GenAI intensifies existing questions about assurance of learning and the credibility of student work (Lodge et al., 2023). There is therefore a need for an integrative conceptual framework that connects pedagogical purpose, educator capability, student agency, ethical technology use, assessment authenticity and institutional support. This paper addresses that need by asking: How can teaching innovation in higher education be conceptualised as a human-centred and pedagogically meaningful practice?

Originality, Contribution and Intended Audience

The paper contributes a role-differentiated architecture for synthesising established constructs, rather than proposing that the constructs themselves are novel. It adds three explicit design commitments to the selected source frameworks. First, pedagogical purpose is an evaluative starting point against which the use of technology, learner participation and assessment can be judged; it is not simply another competency indicator. Second, educator capability, student agency, ethical technology use and assessment authenticity are treated as distinct but mutually constraining enactment mechanisms: an activity may meet one requirement yet fail another. Third, institutional support is theorised as a cross-cutting condition of responsible implementation and sustainability rather than only a predictor of adoption. This configuration gives researchers a set of proposed relationships and potential failure points that no single cited source framework was intended to address in full. It is especially relevant to researchers, educators, academic leaders and quality-assurance professionals in accounting, finance and business education, where AI-enabled professional practice heightens the importance of individual judgement and defensible learning evidence.

Literature Review

Teaching Innovation: From Novelty to Pedagogical Purpose

Teaching innovation should be understood as purposeful improvement in teaching and learning rather than the mere introduction of a new method or technology. The central distinction is between novelty and educational value. Digitalisation can expand access, interaction and flexibility, but it does not automatically improve pedagogy. The educational significance of innovation depends on the learning problem it addresses, the capabilities it develops and the evidence that it improves the learning experience.

This distinction is increasingly important because digital transformation can encourage institutions to equate visible technology adoption with innovation. The TPACK perspective provides a useful counterpoint by arguing that effective technology integration depends on the interaction of technological, pedagogical and content knowledge rather than on technological knowledge alone (Koehler et al., 2013). In this view, technology is pedagogically meaningful only when it is aligned with disciplinary content and teaching strategy. The principle is directly relevant to contemporary AI adoption: the presence of an advanced tool does not establish that the learning design is advanced.

More useful conceptualisation therefore treats teaching innovation as the intentional redesign of learning experiences. This includes the formulation of learning outcomes, the design of activities, the facilitation of dialogue, the provision of feedback, the creation of opportunities for student decision-making and the alignment of assessment with intended capabilities. Pedagogical purpose becomes the criterion that determines whether an innovation is educationally justified. This literature provides the basis for pedagogical purpose as the first dimension of the proposed framework. The methodological design is guided by conceptual research principles, with theory synthesis employed as the primary analytical strategy for integrating previously fragmented perspectives into a coherent conceptual architecture (Jaakkola, 2020).

Digital Pedagogy and Educator Capability

Digital pedagogy is more than technical competence. It involves the pedagogically informed design and implementation of learning in digital environments. Teachers need to consider the relationships students might have with text, with each other, and with feedback; how digital tools can help students develop disciplinary thinking; and how digital tools alter the nature of evidence for assessing learning. The educator is therefore no longer simply a content provider, but a learning designer, facilitator, judge and evaluator.

This is reinforced by established competence models. In terms of technology integration, TPACK presents an interaction between technology, pedagogy and disciplinary content (Koehler et al., 2013). Similarly, DigCompEdu focuses on educators' competencies in relation to professional engagement, digital resources, teaching and learning, assessment, empowerment and the facilitation of learners' digital competence (Redecker, 2017). These perspectives show that educators' preparedness is not just a matter of confidence in using software. It also requires assessment literacy, pedagogical judgement, ethical awareness and the ability to adjust teaching in response to evidence of student learning.

The need for such capability is heightened by GenAI. Educators can leverage AI tools to create examples, identify suitable formative feedback, consider alternative explanations and draft

instructional materials, but must ensure that their uses are educationally appropriate. The role of human professional judgement therefore remains critical. In the proposed framework, the term educator capability is used to describe the ability to select, design, facilitate and critique technology-enhanced learning, rather than simply to use digital tools.

Generative AI and Ethical Technology Use

The use of AI in higher education has involved adaptive systems, automated assessment, prediction and intelligent tutoring, but the speed and ease with which GenAI is now available alters the scope and visibility of AI-supported academic work. As noted in earlier systematic work, studies on AI in higher education frequently neglected the perspectives of educators and pedagogical approaches (Zawacki-Richter et al., 2019). Later reviews highlight the personalisation of support, feedback and content creation, while also pointing to issues of reliability, bias, academic integrity and responsible use (Garzón et al., 2025; Ogunleye et al., 2024). A systematic review of implementation case studies further shows that the educational value of GenAI is not a simple consequence of its adoption but depends on how it is integrated into learning activities and pedagogical frameworks (Belkina et al., 2025). The learning effects reported are also heterogeneous across outcomes and contexts, which aligns with a conditional, rather than deterministic, picture of the effectiveness of GenAI (Chen & Cheung, 2025).

It is therefore impossible to separate ethics from the pedagogical challenge. GenAI can produce plausible but inaccurate information, reproduce bias, process user data via external systems and create unequal advantages based on access. It can also blur the lines between support and the replacement of student intellectual effort. UNESCO (2023) addresses these concerns in a human-centred way, focusing on data privacy, human agency, inclusion, equity, transparency and pedagogically appropriate use.

Ethical use of technology should therefore be part of the educational design process, not an afterthought once technology is implemented. Students need clarity about acceptable use, acknowledgement and verification of AI-generated content, while educators require institutional guidance that preserves professional judgement. The proposed framework treats ethical technology use as a governance mechanism that defines the conditions under which technological possibilities can be translated into responsible educational practice.

Student Engagement and Student Agency

Student engagement is widely associated with achievement and learning, but it is not synonymous with visible participation or enjoyment. Kahu (2013) demonstrates that engagement is a multidimensional construct involving behavioural, psychological, sociocultural and holistic perspectives. A lively class or frequently used digital platform can therefore appear engaging without necessarily producing sustained cognitive effort or meaningful learning.

Student agency is related to engagement but conceptually distinct. Agency concerns learners' capacity to act purposefully, make meaningful choices and influence their learning. Stenalt and Lassen (2022), in a systematic review of higher education research, identify agency across assessment and feedback, knowledge production, learning analytics, real-life learning and student-focused teaching. More recent experimental evidence suggests that AI assistance can create a tendency for learners to rely on automated support rather than learn from it, illustrating why agency cannot be assumed simply because AI increases access to assistance (Darvishi et al., 2024). Engagement is therefore treated here as a learning state or outcome influenced by

pedagogical design, whereas agency is retained as a framework dimension because it represents the learner's capacity to act within the innovation process.

Teaching innovation can strengthen agency through inquiry, problem-based learning, collaborative projects, authentic tasks, flexible pathways and reflection. Agency, however, should not be confused with the withdrawal of educator guidance. Students differ in prior knowledge, confidence, digital competence and self-regulatory capacity. Human-centred innovation therefore requires a balance between autonomy and scaffolding. This balance becomes especially important with GenAI because students can increasingly delegate parts of information retrieval, writing or problem solving to automated systems. The educational goal is to use technology in ways that expand students' capacity to think and act rather than replace the cognitive and reflective processes through which learning occurs.

Assessment Authenticity in the AI Era

Assessment is integral to teaching innovation because it defines which forms of learning are valued and what evidence is accepted as demonstrating achievement. Authentic assessment seeks to connect assessment with meaningful application rather than relying exclusively on decontextualised reproduction. Gulikers et al. (2004) conceptualise authenticity through five dimensions: the assessment task, physical context, social context, assessment result or form, and assessment criteria. This framework highlights the importance of alignment between assessment and relevant forms of performance.

GenAI makes assessment validity more urgent because conventional essays, reports, summaries and code can increasingly be generated or substantially assisted by AI. This does not make written assessment obsolete; it shifts the question from whether a product was produced without technology to whether the assessment provides credible evidence of intended learning. Lodge et al. (2023) argue that assessment reform should both strengthen assurance of learning and prepare students to operate in an AI-enabled world.

A scoping review similarly concludes that GenAI requires assessment transformation at student, teacher and institutional levels, with particular emphasis on self-regulated learning, responsible learning, integrity, professional development and policy renewal (Xia et al., 2024). Recent systematic evidence on authentic assessment also links real-world tasks with critical thinking, problem solving and collaboration, while identifying staff development and institutional support as key implementation conditions (Vlachopoulos & Makri, 2024). Assessment redesign should therefore focus on the validity and authenticity of learning evidence rather than on an escalating search for tasks that are simply difficult for AI.

Depending on disciplinary purpose, authentic evidence may include oral explanation, iterative drafts, project development, portfolios, simulations, reflective commentary, demonstrations, consultations or documented responses to feedback. The format itself is not the defining feature. The central issue is whether assessment reveals students' capacity to interpret, reason, apply, communicate and reflect. Assessment authenticity in the proposed framework therefore operates as the learning-evidence mechanism that links innovation to credible demonstrations of learning.

Human-Centred Education as an Integrative Perspective

Human-centred education is broader than student-centred activity design and narrower than a general claim that education should simply be humane. In this paper, it refers to educational

change in which pedagogical purpose, human agency, professional judgement, ethical responsibility and credible evidence of learning remain primary, while technology functions as an enabling rather than determining force. This interpretation is consistent with UNESCO's (2023) human-centred approach to GenAI, which places agency, inclusion, equity, privacy and human responsibility at the centre of educational governance.

The human-centred lens also clarifies why the framework does not position technology as an independent central dimension. Digital tools and GenAI operate through educator capability, ethical technology use and assessment design; their value depends on the human and pedagogical conditions under which they are selected and used. This orientation connects the six dimensions through a common evaluative question: does the innovation extend human learning and capability without displacing the judgement, responsibility and agency that education is intended to develop?

Institutional Support and Innovation Culture

Teaching innovation cannot be sustained through individual educator effort alone. Universities influence innovation through infrastructure, policy, leadership, workload, professional development, technical and pedagogical support, recognition and quality assurance. Porter and Graham (2016) demonstrate that institutional strategy, structure and support can facilitate or impede faculty adoption of blended learning, illustrating why organisational conditions matter beyond individual willingness.

Institutional support is especially important when innovation requires substantial redesign of teaching or assessment. Without time, expertise and recognition, innovation may become an additional burden rather than a sustainable improvement process. Institutional culture also shapes whether educators feel able to experiment, evaluate and learn from failure. When innovation is primarily treated as a compliance indicator or a count of technologies adopted, visible novelty can displace attention from learning quality.

GenAI further expands institutional responsibility because individual educators cannot reasonably resolve questions of privacy, procurement, academic integrity, accessibility, acceptable use and institutional risk. UNESCO (2023) emphasises policy preparedness and human-centred governance. In the proposed framework, institutional support therefore serves both enabling and governance functions, creating the environment in which the other dimensions can operate and be sustained.

Teaching Innovation in Accounting, Finance and Business Education

The disciplinary relevance of human-centred teaching innovation is particularly evident in accounting, finance and business education because professional work combines technical knowledge with judgement, ethical responsibility and increasing digital forms of analysis. A quantitative systematic review of accounting education research identifies pedagogy, competencies and ethics as major research streams and highlights technology-enhanced student engagement as an important direction for the field (Cao et al., 2024). This combination aligns closely with the present framework's concern for pedagogical purpose, educator capability, learner agency and responsible technology use.

Recent accounting education studies make the GenAI challenge more concrete. Zhou and Luo (2025) report widespread student use of AI and show that accounting students use it to learn difficult concepts and accounting information system tasks while demonstrating critical attention to accuracy, bias and currency. Tharapos et al. (2025) show that ChatGPT can support

lower- to mid-order accounting learning tasks but is less dependable for higher-order reasoning and complex application, leading them to emphasise assessment designs that preserve professional judgement and make learning processes visible. These findings support a human-centred approach in which AI literacy is integrated with verification, explanation and professional responsibility rather than treated as a substitute for disciplinary reasoning.

The same logic extends to business and management education. Contemporary work on assessment in management education argues that authentic, self- and peer-assessment and other innovative approaches deserve greater attention as business schools respond to GenAI, assurance-of-learning expectations and the need for deeper learning (Mesny et al., 2026). For accounting, finance and business programmes, the proposed framework therefore provides a way to connect technology adoption with professional capability, ethical judgement and credible evidence of learning.

Literature Synthesis and Conceptual Gap

The literature provides established explanations of individual components, but their units of analysis and evaluative questions differ. TPACK and DigCompEdu primarily illuminate educator knowledge and competence; agency scholarship examines learners' capacity to act; authentic assessment examines the validity and relevance of performance evidence; UNESCO guidance identifies ethical and governance obligations; and adoption research addresses institutional conditions. An educator can therefore be digitally competent without creating credible evidence of student reasoning; a student can participate actively without exercising independent judgement; and an institution can achieve high AI adoption while leaving privacy or equity unresolved. These are cross-domain misalignments that cannot be diagnosed by an educator-competence or technology-adoption lens alone. This paper does not assert that an existing framework could never be extended to cover them. Rather, it offers an explicit synthesis in which the six domains have different conceptual jobs and their alignment becomes the object of explanation.

The originality of the proposed framework is accordingly bounded: it is an integrative theoretical proposition, not a previously validated model or a demonstration of empirical superiority over TPACK, DigCompEdu or other integrative approaches. Its value must ultimately be tested by assessing whether the architecture explains implementation challenges and learning outcomes beyond what existing measures and models already explain.

This paper addresses this gap by integrating the domains according to their conceptual function rather than treating them as a checklist. Pedagogical purpose provides direction. Educator capability, student agency, ethical technology use and assessment authenticity explain how innovation is enacted and evaluated. Institutional support explains the organisational conditions that enable or constrain the other dimensions. This synthesis provides the basis for the Human-Centred Teaching Innovation Framework developed in this study (Section 5).

Objectives

This conceptual paper aims to:

1. Critically synthesise contemporary literature on teaching innovation, digital pedagogy, generative artificial intelligence, student agency, assessment, and institutional support in higher education.
2. Identify and conceptually integrate the core dimensions underpinning meaningful, human-centred teaching innovation.

3. Develop a Human-Centred Teaching Innovation Framework and articulate its implications for higher education practice and future empirical research.

Data And Research Methodology

Conceptual Research Design

This study adopts a conceptual research design that integrates existing knowledge into a theoretically coherent framework rather than generating or analysing primary empirical data. Conceptual research is appropriate when the aim is to clarify constructs, connect fragmented bodies of literature and develop new theoretical configurations. Jaakkola (2020) argues that conceptual articles require explicit choices concerning the concepts and theories included, their analytical roles and the logic used to integrate them. Following this reasoning, the present study employs theory synthesis to connect complementary streams of literature that explain different conditions of meaningful teaching innovation.

Literature Basis and Analytical Domains

The source base is purposive and concept-led. It includes foundational theory, systematic and scoping reviews, recent empirical studies and authoritative policy guidance on pedagogy, educator digital competence, student agency, AI ethics, authentic assessment, institutional conditions and disciplinary education. The cited bibliography contains 21 works published from 2004 to 2026; that span describes the publications ultimately used and was not an a priori search restriction. Foundational material was retained when needed to define a construct, while more recent material was used to contextualise generative AI and accounting or business education. Sources were judged for conceptual relevance, clarity of theoretical contribution and coverage of the functions addressed by the research question. The purpose was theory development, not estimation of the prevalence of findings or an exhaustive systematic evidence inventory.

Search transparency and limits are material to this synthesis. The manuscript's underlying source-selection process was not maintained as a reproducible systematic-review search log. Consequently, the authors cannot responsibly report verified database names, the initial number of search hits, screening and exclusion totals, or precise search dates. The concepts used to organise the inquiry can be expressed as indicative search clusters—"teaching innovation" AND "higher education"; "digital pedagogy" OR "educator digital competence"; "student agency" OR "student engagement"; "generative AI" AND ("ethics" OR "higher education"); "authentic assessment" AND "AI"; and "institutional support" AND ("technology adoption" OR "teaching innovation"). These are transparent descriptors of the thematic coverage, not a retrospective claim that the exact Boolean strings were entered into particular databases. No PRISMA-style selection flow, comprehensive coverage claim, or formal search saturation is asserted. A future systematic review would require a dated, database-specific protocol, saved search strings and a screening register.

Conceptual Synthesis Procedure

The conceptual synthesis follows three interpretive stages. First, the cited works are read for their focal constructs, explanations and recurring tensions: novelty versus educational value, AI assistance versus human judgement, participation versus agency, technological opportunity versus ethical responsibility, polished outputs versus credible learning evidence, and local experimentation versus sustainable support. Second, overlapping concepts are grouped but kept separate when they answer substantively different questions. For example, educator capability is a property of professional practice, while student agency concerns opportunities for learners

to exercise informed choice; assessment authenticity concerns evidence of learning rather than participation alone. Third, these domains are assigned analytical roles—orientation, enactment, governance, learning evidence and institutional enablement—and connected through propositions. The process is an author-led interpretive synthesis, not independent coding by multiple reviewers or quantitative content analysis.

Criteria for Retaining Framework Dimensions

A domain is retained as a framework dimension when it (i) is supported by relevant conceptual or empirical scholarship, (ii) answers a distinguishable question about pedagogically meaningful innovation, and (iii) exposes an implementation or evaluative condition not adequately represented by another retained domain. Conceptual adequacy was judged against the six functional questions reported in Table 1 and the ability to account for the major tensions discussed in the literature review. This is a reasoned stopping rule for an interpretive model, not demonstrated saturation of the entire literature. Potentially relevant concepts—such as access, equity, workload and digital infrastructure—were assigned to ethical governance or institutional support when their principal function overlapped with a retained domain. The authors acknowledge that alternative configurations remain possible and require independent evaluation.

Methodological Limitations

The conceptual approach neither estimates effect sizes nor establishes causal relations or measurement validity. In particular, a purposive selection without an archived database-search and screening record entails selection bias and limited reproducibility. The 21 cited works should not be mistaken for the total number of publications encountered, and the publication dates should not be read as a preset eligibility window. The framework is judged by conceptual coherence and transparent theoretical reasoning, rather than claims of systematic-search saturation. Future work should test the six-function architecture against competing integrative models and undertake a preregistered or otherwise auditable systematic review before asserting completeness of coverage.

Findings and Analysis: Conceptual Development of the Human-Centred Teaching Innovation Framework

Conceptual Basis and Framework Development

The conceptual analysis indicates that meaningful teaching innovation cannot be adequately explained by technology adoption alone. Across the reviewed domains, six recurring but functionally distinct conditions emerge. Pedagogical purpose provides direction; educator capability enables professional enactment; student agency establishes active learner participation; ethical technology use governs responsible adoption; assessment authenticity provides credible evidence of learning; and institutional support enables and sustains implementation. The framework therefore integrates established constructs into a relational architecture rather than claiming that the individual constructs are new (Table 1).

The framework adopts a human-centred orientation because educational innovation ultimately concerns human learning, capability and development. This position is especially important in the context of GenAI. UNESCO (2023) argues that AI in education should be governed through a human-centred approach that protects human agency, inclusion, equity and privacy. Technology is consequently treated as an enabling resource whose educational value is

conditional on pedagogical purpose, human judgement, responsible governance and credible evidence of learning.

Table I: Conceptual Derivation and Function of the Human-Centred Teaching Innovation Framework

Literature domain	Derived dimension	Conceptual role	Core question	Representative sources
Teaching innovation and technology integration	Pedagogical purpose	Orienting foundation	Why is the innovation educationally necessary?	Koehler et al. (2013); Belkina et al. (2025)
Digital pedagogy and educator competence	Educator capability	Professional enabling mechanism	Can educators design, facilitate and evaluate it effectively?	Redecker (2017); Belkina et al. (2025)
Student engagement and agency	Student agency	Learner participation mechanism	Does the innovation strengthen purposeful learner participation?	Kahu (2013); Stenalt & Lassesen (2022); Darvishi et al. (2024)
AI ethics and responsible technology	Ethical technology use	Governance mechanism	Is technology used transparently, fairly and responsibly?	UNESCO (2023); Ogunleye et al. (2024)
Authentic assessment and AI-era reform	Assessment authenticity	Learning-evidence mechanism	Does assessment provide credible evidence of intended learning?	Gulikers et al. (2004); Xia et al. (2024); Vlachopoulos & Makri (2024)
Institutional adoption and innovation culture	Institutional support	Enabling and sustaining environment	Do organisational conditions enable the practice to continue?	Porter & Graham (2016); UNESCO (2023); Xia et al. (2024)

Pedagogical Purpose: The Orienting Foundation

Pedagogical purpose addresses why an innovation is introduced. Teaching innovation should begin with an educational need, learning problem, or desired learner capability rather than the availability of a particular technology. The TPACK perspective reinforces this principle because technology integration becomes meaningful through its interaction with pedagogy and disciplinary content (Koehler et al., 2013). Pedagogical purpose therefore guides decisions about whether technology is needed, what educator capabilities are required, how students should participate, and what evidence should demonstrate learning.

Within the framework, pedagogical purpose is not simply one component among six; it is the orienting foundation. A technologically sophisticated intervention may have little educational value when its learning rationale is unclear, while a relatively simple strategy may constitute meaningful innovation when it solves a genuine learning problem. This positioning deliberately shifts evaluation away from the novelty of tools towards the quality and relevance of the learning they enable.

Educator Capability: The Professional Enabling Mechanism

Educator capability translates pedagogical intention into practice. TPACK emphasises the interaction of technological, pedagogical and content knowledge (Koehler et al., 2013), while DigCompEdu extends educator competence to professional engagement, digital resources, teaching and learning, assessment and learner empowerment (Redecker, 2017). These perspectives support a multidimensional interpretation of readiness.

The framework therefore defines educator capability as encompassing pedagogical judgement, disciplinary knowledge, assessment literacy, facilitation skills, ethical awareness, reflective capacity and the confidence to adapt practice. In AI-enabled environments, capability also includes the ability to decide when technology adds educational value, when it creates unacceptable risks and when non-technological approaches are preferable. Educator capability functions as the professional enabling mechanism, as institutional investment or sophisticated technology cannot generate meaningful innovation without educators who are able to design and mediate learning.

Student Agency: The Learner Participation Mechanism

Student agency positions learners as active participants rather than passive recipients of innovation. It concerns the capacity to act purposefully, exercise meaningful choice and influence learning processes. This is related to, but distinct from, engagement: engagement describes the quality and intensity of involvement, whereas agency foregrounds the learner's capacity to act within an educational context (Kahu, 2013; Stenalt & Lassesen, 2022).

Teaching innovation can strengthen agency by creating opportunities for inquiry, decision-making, collaboration, authentic problem-solving, creation and reflection. Agency does not imply unrestricted independence; meaningful agency requires scaffolding that is appropriate to students' prior knowledge and self-regulatory capacity. In AI-supported learning, the distinction becomes particularly important because students may delegate cognitive tasks to automated systems. A human-centred design seeks to use AI to extend student capability without replacing the judgement and reflection through which learning develops.

Ethical Technology Use: The Governance Mechanism

Ethical technology use recognises that effectiveness cannot be separated from responsibility. AI-supported learning can create risks involving privacy, bias, misinformation, unequal access, academic integrity and the displacement of human judgement. UNESCO (2023) therefore emphasises a human-centred approach based on agency, inclusion, equity, privacy and accountability.

Within this framework, ethical technology use involves transparency about when and how AI is used; responsible treatment of student data; fairness and accessibility; clear expectations for academic integrity; and the preservation of human responsibility for educational decisions. Ethics is not treated as an external compliance check after adoption; it is a governance mechanism embedded in pedagogical design. An intervention that is efficient or engaging but undermines fairness, privacy or agency cannot be considered fully meaningful teaching innovation.

Assessment Authenticity: The Learning-Evidence Mechanism

Assessment authenticity connects innovation to credible evidence of learning. Gulikers et al. (2004) show that authenticity involves the task, context, social setting, assessment result and criteria, highlighting alignment with relevant forms of performance. In the present framework, authenticity does not require every assessment to imitate a workplace activity; it requires assessment to generate credible evidence that students can interpret, reason, apply, communicate and reflect in relation to the intended outcomes.

GenAI intensifies the issue because polished products may no longer reveal the intellectual process that produced them. Lodge et al. (2023) argue that assessment reform should strengthen

assurance of learning while preparing students for an AI-enabled world. Process evidence, oral explanation, iterative drafts, demonstrations, portfolios or reflective commentary may therefore be appropriate when they improve validity. These approaches should not be adopted merely as AI-resistant formats; their purpose is to make evidence of learning more credible and educationally meaningful.

Institutional Support: Enabling and Sustaining Environment

Institutional support surrounds the other dimensions because organisational conditions can strengthen or constrain their operation. Porter and Graham (2016) show that institutional strategy, structure and support influence faculty adoption of blended learning. Sustainable innovation therefore requires more than infrastructure; it also requires leadership, professional development, workload recognition, technical and pedagogical assistance, clear policy, evaluation and opportunities for collaboration.

The institutional role becomes more consequential with GenAI because educators cannot independently resolve all questions of privacy, acceptable use, procurement, accessibility, academic integrity and risk. Institutions need coherent governance while preserving appropriate professional judgement. An innovation culture should also allow experimentation, evaluation and responsible failure, rather than treating innovation as a compliance indicator. Institutional support therefore functions as the enabling and sustaining environment of the framework.

Interrelationships and Conceptual Architecture

The dimensions operate at different conceptual levels. Pedagogical purpose provides the orienting foundation. Educator capability, student agency, ethical technology use, and assessment authenticity form the human-centred enactment layer through which innovation is designed, experienced, governed, and evaluated (Figure 1). Institutional support is not a later stage in a linear sequence; it is the enabling environment that can strengthen or constrain all these processes. Meaningful teaching innovation is defined here as educational change that aligns with intended learning, strengthens learner capability and agency, preserves ethical and professional responsibility, and produces credible evidence of learning. Sustainability refers to the capacity of such innovation to be supported, evaluated, adapted, and continued beyond isolated implementation.

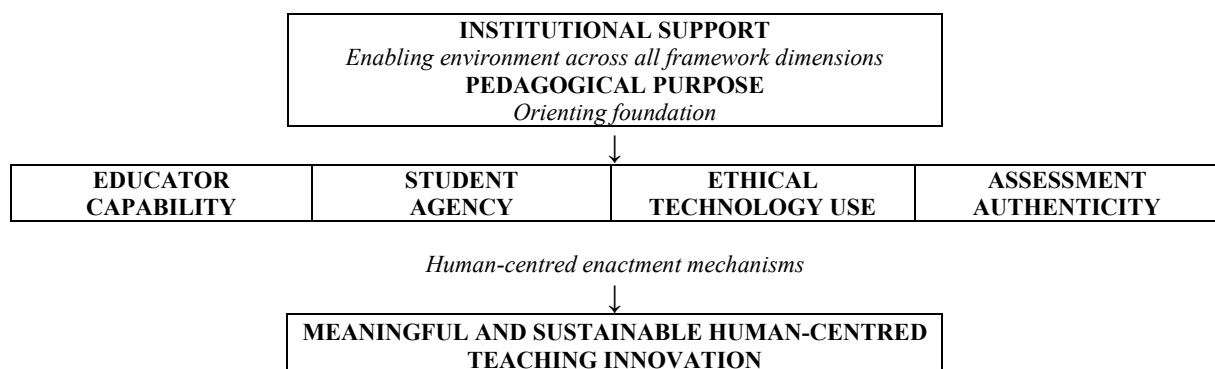


Figure 1: Proposed Conceptual Architecture of the Human-Centred Teaching Innovation Framework

Note. Institutional support is an enabling environment operating across all dimensions. Arrows represent proposed conceptual alignment rather than empirically established causal pathways.

This relational interpretation is important. A pedagogically purposeful AI-supported activity may still be ineffective if educators lack the capability to facilitate it. Strong educator capability may be constrained by institutional policy or limited resources. High levels of student participation do not establish meaningful learning if assessment cannot provide credible evidence of the intended capability. Similarly, technically effective systems cannot be regarded as human-centred if they compromise fairness, privacy or learner agency. The framework therefore treats alignment, rather than technological sophistication, as the central condition for meaningful innovation.

Conceptual Propositions

Pedagogical purpose provides the criterion through which instructional and technological choices are aligned with intended learning. TPACK similarly treats technology as educationally meaningful when it is integrated with pedagogy and disciplinary content (Koehler et al., 2013). Accordingly, P1: Alignment between a teaching innovation and an explicit pedagogical purpose is expected to strengthen the meaningfulness of the resulting learning experience.

Educator capability determines whether pedagogical intentions can be translated into appropriate design, facilitation, assessment and professional judgement. DigCompEdu and recent GenAI implementation research both position educator competence as multidimensional rather than merely technical (Redecker, 2017; Belkina et al., 2025). Accordingly, P2: Educator capability is expected to strengthen the translation of pedagogical purpose into effective, innovative teaching practice.

Agency is retained because meaningful innovation should expand learners' capacity to act rather than merely increase visible participation. Evidence that students may rely on, rather than learn from, AI support reinforces the need to protect active cognitive participation (Darvishi et al., 2024; Stenalt & Lassesen, 2022). Accordingly, P3: Teaching innovation that provides meaningful opportunities for student agency is expected to strengthen active and reflective learning.

Responsible technology use requires educational benefits to be pursued within conditions of transparency, privacy, equity, accountability and preserved human responsibility (UNESCO, 2023). Accordingly, P4: Ethical technology governance is expected to strengthen the legitimacy, fairness and inclusiveness of technology-supported teaching innovation.

Assessment is the mechanism through which claims about learning become credible. GenAI increases the need to align tasks and evidence with intended capabilities, particularly where final products can be substantially machine-assisted (Lodge et al., 2023; Xia et al., 2024). Accordingly, P5: Alignment between teaching innovation and authentic assessment is expected to strengthen the credibility of evidence of student learning.

Institutional strategy, professional development, policy, workload recognition and governance shape whether innovations can be implemented and sustained beyond isolated educator effort (Porter & Graham, 2016; Xia et al., 2024). Accordingly, P6: Institutional support is expected to enable the sustained implementation, evaluation and scaling of human-centred teaching innovation.

These propositions are conceptual rather than empirically established causal relationships. They are intended to make the framework testable and to guide future operationalisation and empirical validation.

Discussion

Integrative Theoretical Contribution

The principal theoretical contribution is a specification of how distinct literatures should be connected and where a one-domain explanation may be insufficient. TPACK explains the intersection of technology, pedagogy and disciplinary content, but does not by itself supply an institution-wide account of agency, ethical AI governance and learning-evidence validity. DigCompEdu addresses professional digital competence, including assessment and learner empowerment, but its focal construct remains educator competence rather than the relational success of a whole innovation. Agency and engagement research focuses on learners; authentic assessment focuses on the meaning and credibility of evidence; human-centred AI guidance foregrounds equity and responsibility; and institutional adoption research accounts for structural enablers (Gulikers et al., 2004; Kahu, 2013; Koehler et al., 2013; Porter & Graham, 2016; Redecker, 2017; UNESCO, 2023). The present framework neither supersedes these models nor claims that they cannot be combined by other researchers. Its narrower contribution is to place their complementary insights into one role-differentiated architecture and make cross-domain alignment itself an explicit question for theoretical and empirical inquiry (Jaakkola, 2020).

The framework also makes a deliberate theoretical choice not to position technology as a separate central dimension. Technology operates within educator capability, ethical technology use and assessment design, but its educational value is conditional. This prevents the framework from reproducing the technology-centric assumption it seeks to challenge. The model instead asks whether technology serves a pedagogical purpose, preserves human agency, operates within ethical boundaries and produces credible evidence of learning.

Human-Centred Innovation in the GenAI Era

GenAI strengthens the case for this relational view because it simultaneously expands educational possibilities and destabilises familiar indicators of learning. Reviews identify opportunities for support, feedback and content generation, while also documenting concerns about accuracy, ethics and implementation (Garzón et al., 2025; Ogunleye et al., 2024). A purely adoption-focused response can therefore be misleading. Institutions may increase AI use without improving learning, while restrictive responses may protect familiar assessment formats without preparing students for AI-enabled professional environments.

The framework suggests a different sequence for decision-making. Educators first identify the learning problem and intended capability. They then determine the professional capability required to facilitate the design, the role students should play, the ethical boundaries of technology use and the evidence needed to establish learning. Institutional support is considered throughout because policies, resources and development opportunities shape what can be implemented responsibly. This sequence foregrounds human and pedagogical questions before technological selection.

Implications for Accounting, Finance and Business Education

The framework is relevant to accounting, finance and business education because professional practice in these disciplines increasingly incorporates digital platforms, analytics, automation and AI-supported decision environments. Accounting-education scholarship identifies pedagogy, competencies and ethics as major streams requiring continued development as technology reshapes professional preparation (Cao et al., 2024). Student evidence indicates that AI is already embedded in accounting learning, particularly for difficult concepts and accounting-information-system tasks (Zhou & Luo, 2025). At the same time, evaluation of GenAI against accounting assessments shows stronger performance on lower- to mid-order tasks than on complex higher-order application, reinforcing the importance of professional judgement, verification and process evidence (Tharapos et al., 2025).

A human-centred approach therefore encourages educators in these fields to design learning around professional reasoning rather than output production alone. Case analysis can require students to justify assumptions and defend decisions; financial or accounting tasks can include verification of AI-generated interpretations; business projects can document prompts, iterations, evidence sources and ethical trade-offs; and assessment can combine digital tool use with oral explanation or reflective process evidence. This direction is consistent with recent management-education scholarship calling for more purposeful use of authentic and other learning-oriented assessment approaches in response to GenAI, assurance-of-learning and deep-learning challenges (Mesny et al., 2026). These examples remain implications of the framework rather than empirically validated prescriptions.

The journal context also makes institutional implications relevant. Business schools and faculties should avoid treating AI policy solely as an academic-integrity issue. Responsible integration requires coordinated professional development, assessment guidance, data and privacy rules, equitable access and mechanisms for evaluating educational impact. The framework provides a structure through which such decisions can be connected rather than managed as separate technology initiatives.

Boundary Conditions and Limitations

The framework should not be interpreted as universally invariant. Disciplinary norms, accreditation requirements, class size, student characteristics, institutional resources, national regulation, digital access and cultural expectations may change how the six dimensions operate. Assessment of authenticity in a professionally accredited accounting programme, for example, may be constrained by requirements that differ from those in a humanities programme. Similarly, the balance between student agency and scaffolding may vary according to level of study and prior experience.

The conceptual design also limits the strength of the claims. The framework identifies theoretically plausible relationships but does not establish their direction, magnitude or causal order. The six dimensions may interact recursively rather than linearly, and institutional support may moderate several relationships. Future research should therefore treat the current architecture as a foundation for refinement rather than as a final model.

Conclusion & Recommendations

Conclusion

This paper conceptualises meaningful teaching innovation as an outcome proposed to depend on alignment among pedagogical purpose, educator capability, student agency, ethical technology use, authentic assessment and institutional support. Its contribution is integrative and provisional: instead of placing technology at the centre, the Human-Centred Teaching Innovation Framework positions educational purpose and human agency as central criteria for designing, governing and evaluating technology-enabled teaching. Pedagogical purpose gives direction, four mechanisms concern enactment and evaluation, and institutional support provides conditions for sustainability.

The framework remains a conceptual foundation rather than a validated explanatory model. It therefore does not establish that the six dimensions have equal importance or that their proposed relationships are causal. Its value lies in providing a theoretically grounded structure for asking better questions about innovation: Why is innovation educationally necessary? Are educators capable of implementing it? Does it strengthen learner agency? Is technology used responsibly? Does assessment provide credible evidence of learning? Do institutional conditions enable the practice to continue?

Recommendations for Practice

Educators should begin innovation with a clearly defined learning problem and intended capability, rather than a preferred tool. Technology selection should follow pedagogical design. Where GenAI is used, students should receive clear guidance on acceptable use, acknowledgement, verification and responsibility for outputs. Assessment should be reviewed for the credibility of learning evidence and, where appropriate, should incorporate process evidence, explanation, application or reflection rather than relying solely on final products.

Institutions should support this work through coordinated professional development, assessment guidance, privacy and data governance, equitable access, workload recognition and opportunities for educators to evaluate and share practice. In accounting, finance and business education, professional judgement and ethical decision-making should remain explicit learning outcomes even when students use AI-enabled tools. Technology should augment, not obscure, students' responsibility for reasoning and evidence.

Recommendations for Future Research

Future research should first evaluate the conceptual completeness and contextual relevance of the six dimensions through expert interviews, Delphi studies, focus groups, or comparative case studies. A subsequent measurement-development phase should establish content validity through expert review, generate and refine candidate items, conduct pilot testing, and then evaluate reliability, convergent validity, and discriminant validity. Structural equation modelling may be appropriate only after a defensible measurement model has been established. Longitudinal, quasi-experimental, or experimental designs would then be required to support stronger causal claims about how the dimensions influence outcomes such as engagement, learning quality, assessment integrity, and educator readiness.

Cross-disciplinary and cross-cultural studies are also needed. Accounting, finance, and business education offer a useful empirical setting because professional judgement, ethical responsibility, digital capability, and credible assessment are simultaneously salient.

Comparative research can examine whether the framework operates differently across professional programmes, institutional types, and regulatory environments. Such work would determine whether the framework should remain a general architecture or be adapted into discipline-specific models.

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