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Collaboration, Creativity and Compassion in a Digital Society

A human-centred framework for AI integration in the curriculum

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This paper reports ongoing work at La Trobe University to cultivate a shared understanding of effective artificial intelligence (AI) integration through the design of a human-centred framework for embedding AI literacies into teaching and learning. In response to conceptual ambiguity of AI curriculum integration, the Online Education Design team developed an operational definition positioning AI as infrastructure for active learning and the educator as the central decision-maker in the learning design process. This definition was translated into the AI-Informed Learning Design Framework, a four-step process, in which educators define the learning goal, select an AI pedagogical role, apply an AI Assessment Scale boundary check, then design learning activities that develop disciplinary knowledge and AI literacy. Supported by a four-level scaffolding model governing students' growing independence in AI use, the framework was piloted through two rounds, using a design-based research methodology. Feedback from Round one highlighted opportunities to refine the framework whilst also emphasising broader sector-wide tensions surrounding AI integration, including educators' reluctance to use AI and concerns about the framing of some AI roles in teaching and learning. Early findings from the second round suggest improved educator engagement and a stronger understanding of the framework.

Keywords: artificial intelligence, curriculum design, AI literacy, human-centred learning design

Introduction

In response to evolving expectations for AI use in higher education, La Trobe University has positioned itself as an AI-first university under its Education2030 strategy, aiming to provide every student and staff member with ethically integrated AI tools across teaching, research and operations by 2027. The strategy centres on AI supporting, not replacing, people, with the focus not only on providing access to AI tools, but on their effective and purposeful use. The strategy aims to progressively integrate AI across all disciplines, preparing graduates who are AI-ready for the workforce, whatever their field.

Implementation began with the AI Assessment Scale (AIAS) and an AI acknowledgement statement, followed by the embedding of four core AI literacies in the first-year curriculum: critical evaluation of AI outputs, responsible and ethical use, metacognitive engagement, and foundational understanding of AI systems. These first-year AI literacies act as a foundation on which AI capability can be scaffolded across each year of study.

The Online Education Design (OED) team was tasked with working with first-year subject coordinators to embed these literacies into the curriculum through a series of workshops and consultation sessions. This raised an initial question: What does AI integration actually mean, and how can AI literacy be developed not as a standalone objective, but as part of the learning process itself? This paper reports on this evolving human-centred design framework to guide AI integration, which positions the educator as central to pedagogical design decisions, and the early findings from its pilot implementation.

AI integration in the curriculum

To guide our implementation and to move past the conceptual ambiguity surrounding AI integration in current educational technology literature (Chiu, 2026; Hou, 2025), the OED team established an operational definition, grounded in a human-centred approach to learning design.

This definition recognises that AI integration extends beyond the adoption of AI tools, encompassing its role as pedagogical infrastructure (Hou, 2025). AI integration in the curriculum means the intentional and effective use of AI within instructional design, guided by the educator in their dual roles as designer and facilitator, to address specific learning needs, achieve established learning outcomes, and build student readiness for assessment. This definition challenges technocentric views that treat AI as an add-on or a separate topic of study within the subject (Ekuma, 2026; Hou, 2025). Instead, it positions AI as infrastructure for active learning: effective integration occurs only when the technology serves a learning need and pedagogical purpose (Chiu, 2026). By aligning the AI tool with both learning outcomes and assessment design, AI literacies become a natural outcome of effective integration, rather than a detached theoretical skill, shifting AI literacy into a situated, experiential competency, developed through students' active engagement with AI rather than through passive exposure to it.

While this definition provides a foundation for understanding AI integration, the implementation question remains: how can AI literacy be developed as an outcome of the learning process rather than a standalone objective?

The AI-Informed Learning Design Framework

The AI-Informed Learning Design Framework was developed to address this question. It provides a structured guide for designing AI-informed learning activities that are purposeful, pedagogically grounded, and aligned with subject learning outcomes and assessment. The framework is underpinned by a central design principle: learning goals, rather than technology, should drive learning design, with the educator positioned as the central decision-maker throughout the process. This principle responds to a risk identified across the higher education sector: that without a clear pedagogical rationale, AI use in learning and teaching may become ad hoc and inconsistent (Azevedo et al., 2025), remaining superficial, bypassing intended learning processes, or creating challenges for assessment integrity (Abedin et al., 2026).

The framework translates this principle into four sequential design decisions, each of which requires deliberate educator judgement rather than automated or tool-driven choices.

Step 1: Define the learning goal

The educator begins by articulating what students should know or be able to do, grounded in existing subject learning outcomes and assessment requirements, consistent with the principle of constructive alignment (Biggs & Tang, 2011). This step deliberately excludes AI from the decision; the learning goal is established on its own pedagogical merits, before any consideration of technology. In this step, the educator asks: What is the purpose and goal of this activity, and how does it connect to the module's learning outcomes and assessments? What do I want students to be able to do by the end of this activity?

Step 2: Select the AI pedagogical role

Only once the learning goal is defined does the educator consider whether, and how, AI might support it. Drawing on six roles adapted from Mollick and Mollick (2023) (Tutor, Mentor, Coach, Student, Simulator, and Advisor), the educator selects the role that best matches the learning need. This step also identifies which AI literacies the activity is likely to develop. These literacies are not fixed by the role alone; they emerge from the interaction between the AI role selected and the nature of the activity itself, meaning the same role can support different literacies depending on how the activity is designed.

Here, the educator asks: What type of support do students require: explanation, feedback, reflection, practice, evaluation or career guidance? Which AI role best aligns with this need? Which AI literacy skills will students develop through using AI and completing the activity?

Step 3: Apply the AIAS boundary check

The AIAS level for the task is set at the assessment design stage. Here, the educator decides whether this preparation activity should apply that same level, asking: Does applying the AIAS level support the intended learning, or does it unnecessarily restrict it?

Step 4: Design or adapt the activity

With the learning goal, AI role and boundary determined, the educator designs the activity itself, asking: What will students do, and what will they produce that demonstrates learning and AI literacy*?* To support this step, an activity bank brings the previous three decisions together into practical examples, organised by AI role, allowing educators to see how the framework operates in practice and either adopt an activity directly or adapt it to suit their own discipline and context.

Supporting this four-step process is a four-level scaffolding model (L1–L4) that governs how much independence students are expected to exercise when working with AI, moving from pre-entry foundational literacy (no AI tool used), through highly and partially scaffolded engagement, to full independence at L4 (van de Pol et al., 2010). This progression can be mapped within a single subject or across a year and reflects a progression of student capability over time.

Throughout, the framework is explicit that AI roles support teaching practice; they do not replace it. The educator remains centrally positioned as the decision-maker, responsible for facilitating discussion and interpretation, guiding students in evaluating AI outputs, establishing expectations for responsible use, and applying disciplinary judgement and expertise.

Methodology

This study follows a design-based research (DBR) approach, used in education to design and develop learning environments that address complex problems through iterative cycles of design, development, reflection and redesign, undertaken in collaboration with practitioners in real-world settings (Anderson & Shattuck, 2012). This approach was well suited to the development of the AI-Informed Learning Design Framework, as the framework itself constitutes the intervention: each phase involved introducing it to stakeholders and educators, gathering feedback, and refining it accordingly. This paper reports on educator practice and pilot implementation rather than formal research study, and therefore did not require ethics committee approval.

Phase 1: Development, initial review and pilot implementation

Phase 1 comprised an initial expert and leadership review, followed by pilot implementation across two rounds. The framework was developed and refined as part of the OED team's ongoing learning design work to support AI integration across the curriculum.

Initial review

Following development of the framework based on relevant literature and existing practice, feedback was sought from senior leaders and members of the AI working group. Both groups endorsed the framework's direction, particularly its focus on learning goals and its positioning of AI literacy as a natural outcome of effective integration rather than a separately taught objective, recommending that this principle be made explicit in workshop delivery as part of a human-centred approach.

Pilot implementation

Once approved, the framework was introduced through monthly workshops designed to support educators in integrating AI into their curriculum. Each session introduced the AI literacies and the framework, followed by a practical component; educators were subsequently offered one-on-one consultations to support them in integrating AI into their own subjects and curriculum contexts. Engagement and questions were noted during each session to identify areas for refinement.

- **Round 1**: After explaining the AI literacies and the framework, a worked example was provided to demonstrate the framework's application in practice, after which educators were given a scenario to complete independently. Engagement and questions from four educators were noted during a facilitated workshop session; one of these educators, a former institutional AI Ambassador, was also consulted separately for expert feedback. Ten OEDs were consulted separately for professional feedback.
- **Round 2:** The worked example was replaced with a hands-on scenario in which educators built an activity from scratch, guided step by step through the framework to ensure each stage was understood before progressing to the next. Engagement and questions from a further four educators were noted during a facilitated workshop session.

Findings

Feedback from Round 1 identified four concerns. First, the names given to AI roles (Tutor, Mentor, Coach, etc.) were felt by some to challenge, rather than support, the educator's existing teaching role. Second, some educators expressed a preference not to use AI within their teaching contexts. Third, the facilitation guidance, positioning the educator as the key decision-maker in learning design, was not sufficiently clear. Fourth, first-year students were perceived to lack some of the AI literacies assumed by the framework's activities.

In response to these findings, the workshop resources were refined to reinforce that AI roles are intended to support, rather than replace, teaching practice. Greater emphasis was placed on non-AI alternatives and standalone AI literacy activities to accommodate contexts where AI use was not preferred. However, the importance of developing students' AI literacies was also reinforced, recognising that AI literacy remains a relevant capability even in contexts where educators choose not to incorporate AI directly into teaching and learning. The educator's central role in learning design was also made more explicit through revised facilitation guidance. To address concerns about student readiness, educators were encouraged to run a short preparatory session introducing relevant AI literacies and directing students to foundational resources before implementing AI-supported learning activities, aligning with La Trobe's broader development of foundational AI literacy modules that will be available to students by early 2027.

In Round 2, engagement levels were higher, and educators asked fewer clarifying questions than in Round 1, suggesting the refinements may have improved clarity and understanding. Feedback collection for Round 2 is ongoing, and findings reported here reflect observations from the workshop session to date rather than a completed analysis. Future iterations will involve broader implementation and continued refinement of the framework across La Trobe's curriculum.

Discussion

One of the main challenges identified across Phase 1 is that there is not yet a shared understanding across the university of what effective AI integration in the curriculum actually looks like. This is the same conceptual ambiguity identified in the literature (Chiu, 2026; Hou, 2025) that motivated the operational definition set out earlier in this paper. However, Phase 1 suggests that this ambiguity extends beyond a conceptual challenge; it remains an ongoing implementation issue for educators, influencing practical decisions about the purpose, scope, and approach to AI integration within the curriculum.

This lack of shared understanding shapes many of the design decisions that follow – different educators, working from different assumptions about what "effective" AI integration means, may reasonably arrive at different starting points; for example, whether an activity should begin with the AI literacies a student needs to develop, or with the subject's learning goal and the pedagogical need it serves. The framework's design principle, that human-centred learning goals, rather than technology, should drive learning design, offers one way of addressing this question by positioning AI literacy development as something that emerges through

purposeful integration, while recognising that AI literacy may also be an explicit learning goal where appropriate.

Educators who felt the AI roles challenged their own teaching role were, in effect, reflecting a broader pattern reported in the literature, where a meaningful proportion of educators perceive AI as capable of replacing core aspects of their teaching role (Chan & Tsi, 2023). This suggests initial resistance reflects a genuine, sector-wide tension about the extent to which AI may reshape educators' roles and the degree of agency they retain over teaching and learning, highlighting the importance of making the framework's human-centred design explicit rather than implicit.

The second concern raised in Round 1 focused on some educators' perception of the lack of necessity of AI integration in their subject, or that AI would not meaningfully benefit their teaching. It was also noted that some students were reported as preferring not to use AI. Rather than contradicting the framework, this judgement is consistent with its central design principle, that AI should only be used where it serves a distinct pedagogical function, not by default. The framework already accommodated this through the provision of non-AI alternatives for each activity example and a separate category of activities focused on developing AI literacy without requiring AI use within a specific subject activity, ensuring literacy development remains available even where an educator or student opted out of AI use. Indeed, professional bodies have argued that determining the most appropriate pedagogy for a given context, including whether AI use is beneficial or inappropriate, is properly within the professional judgement of educators themselves (American Association of University Professors, 2025).

Together, these concerns show why educators need to continue exercising judgement at each step of the framework to ensure human-centred AI integration: determining whether AI actually helps their subject, and whether the selected AI role supports their teaching, student success, and the learning need.

Conclusion

This paper has argued that effective AI integration in the curriculum depends on keeping the educator, not the technology, at the centre of design decisions. The human-centred framework developed by the OED team translates this principle into practice, positioning AI literacy as an outcome of purposeful activity design rather than a standalone objective.

Round 1 suggests the framework's value lies not in eliminating the sector's underlying uncertainty about AI integration, but in providing educators a structured basis for exercising professional judgement about when, why and how AI is used in their teaching. As Round 1 concludes, feedback from Round 2 remains under analysis. Future phases will extend this work through broader rollout and evaluation across La Trobe's curriculum, contributing to the university's wider Education2030 goals.

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