Embedding work-integrated learning through human-centred design for an AI-driven environment

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Background

IDEA9202 Experience Design Studio is a core 12-credit postgraduate studio unit within the Master of Interaction Design and Electronic Arts (MIDEA) at the University of Sydney. The cohort is predominantly international students with design backgrounds, alongside students from Information Technology, Business and Communication. This disciplinary diversity makes the unit a critical site for developing shared design capabilities, professional identity and industry readiness at the postgraduate level.

This work addresses a misalignment between prevailing higher education assessment practices and the realities of contemporary design practice, particularly amid increasing AI integration. Assessment remains dominated by tasks privileging content recall, standardisation and product-focused outputs – forms increasingly susceptible to automation by generative AI (Kizilcec et al, 2024). In design education, this risks narrowing learning to artefact production while undermining empathy, ethical judgement, collaboration, creative problem-solving and independent professional judgement (Gerlich, 2025; Zhai et al, 2024).

In response, this case study presents a redesign of assessment in IDEA9202 that foregrounds process-oriented, human-centred and industry-facing learning outcomes robust in AI-rich environments. The unit develops students' capacity to apply research-led interaction design processes; generate, evaluate and refine novel design concepts; prototype interactive systems; attend to aesthetic and experiential qualities; communicate persuasively to specialist and non-specialist audiences; collaborate effectively in teams; and work independently through reflection, self-evaluation and incorporation of feedback. Ethical and critical use of digital tools, including AI, is explicitly embedded within project work.

The assessment redesign is guided by three objectives:

+ embedding authentic work-integrated learning (WIL) through sustained client engagement
+ cultivating distinctly human capabilities alongside critical digital fluency
+ aligning assessment with sector expectations around graduate employability, academic integrity and future-ready education.

The work is informed by an integrated pedagogical framework. Human-Centred Design (HCD) provides the primary foundation, foregrounding empathy, iteration, reflexivity and co-creation as core competencies. Authentic assessment theory informs task design, emphasising performances that mirror professional practice and require judgement in complex contexts (Kember and McNaught, 2007).

WIL operates as the structural framework for the assessment redesign. Consistent with the Higher Education Standards Framework (Threshold Standards) 2021, WIL is defined as learning undertaken in a work context as part of course requirements, including industry-partnered studio projects (TEQSA, 2022). WIL is widely recognised for supporting employability by enabling students to apply theory in authentic contexts, develop professional networks and prepare for workforce transition (Patrick, Peach and Pocknee, 2009; University of Sydney, 2025).

In IDEA9202, this approach is enacted through a real client project with the Multi-Arts Pavilion, mima (MAP mima), located in Lake Macquarie, New South Wales. MAP mima is a contemporary museum and digital art venue that hosts immersive and interactive installations, providing an authentic professional context for students to engage with a client, respond to real briefs and negotiate the complexities of interaction and experience design practice. Disciplinarily, the redesign responds to long-standing challenges in interaction and experience design education, where professional competence is demonstrated not only through final artefacts, but through iterative processes, ethical decision-making, teamwork and sustained stakeholder engagement.

Approach

Over the past two years and across two semesters, three core pedagogical approaches were employed to support student learning within this unit: work-integrated learning (WIL), the embedding of Human-Centred Design (HCD) methods, and the integration of digital tools alongside design methodologies and soft-skills. Collectively, these strategies cultivated a learning environment that closely aligns with contemporary professional practice and prepares students for future trajectories in the design field.

Authentic assessment through WIL with MAP mima

The first approach involved the adoption of WIL as a mechanism for constructing an authentically situated assessment framework. Students collaborated directly with MAP mima and were required to engage with genuine design briefs rather than abstract or hypothetical scenarios. This arrangement exposed students to the operational complexities of professional design work, including financial constraints and the imperative to generate outcomes that are simultaneously creative and practically achievable.

Working with external clients required students to negotiate project intentions, articulate design decisions with clarity and integrate stakeholder perspectives into iterative design revisions. Students also practised translating conceptual design intentions into coded artefacts to enable more efficient project handovers – an increasingly consequential skill in contemporary design workflows. Principles of accessibility and inclusivity were embedded throughout, reinforcing the ethical commitments expected of emerging designers. Together, these experiences were intended to strengthen students' professional readiness and facilitate a more confident transition from academic learning into industry practice.

Embedding HCD across the design process

The second approach centred on embedding HCD across all phases of project development. The design process commenced with in-depth site research, during which students conducted detailed investigations of MAP mima and visited analogous locations to expand their contextual understanding. HCD methods supported students in developing an informed sensitivity to local spatial, cultural and environmental conditions. The methods encouraged multi-perspectival interpretation of place and ensured that students' early conceptual thinking was grounded in contextual specificity.

The subsequent phase focused on user understanding. HCD techniques enhanced students' observational acuity, analytical proficiency, communication skills and ethical awareness. Treating users as active participants in the design process enabled students to identify needs, expectations and potential friction points embedded in their emerging design responses.

The delivery phase culminated in the production of prototypes that were presented at a testing fair attended by clients and industry partners. Students were required to justify their approach, address feedback and outline improvements. Through both digital and hands-on prototyping, students gained experience with iterative design workflows that reflect established industry practice.

Integrating digital tools, design methods and soft skills

The third approach involved an integrative pedagogical model that positioned digital tools, design methods and soft skills as interdependent components of the learning experience. Digital platforms such as Figma provided a collaborative environment where students could organise their work in real time. As students increasingly incorporated AI-assisted tools into their workflows, the teaching team emphasised that such technologies enhance design execution but do not replace thoughtful, human-centred decision-making.

Design methods continued to anchor the unit, guiding students through research, ideation, testing and implementation. Their consistent use ensured that technological tools were deployed with intentionality and methodological rigour.

Soft skills were positioned as indispensable attributes of competent designers. Despite rapid technological advancement, it remains critical to reaffirm that design is, at its core, a human-centred discipline. Framing design around human value and criticality encouraged students to move fluidly between creative practice, digital augmentation and ethical reflection.

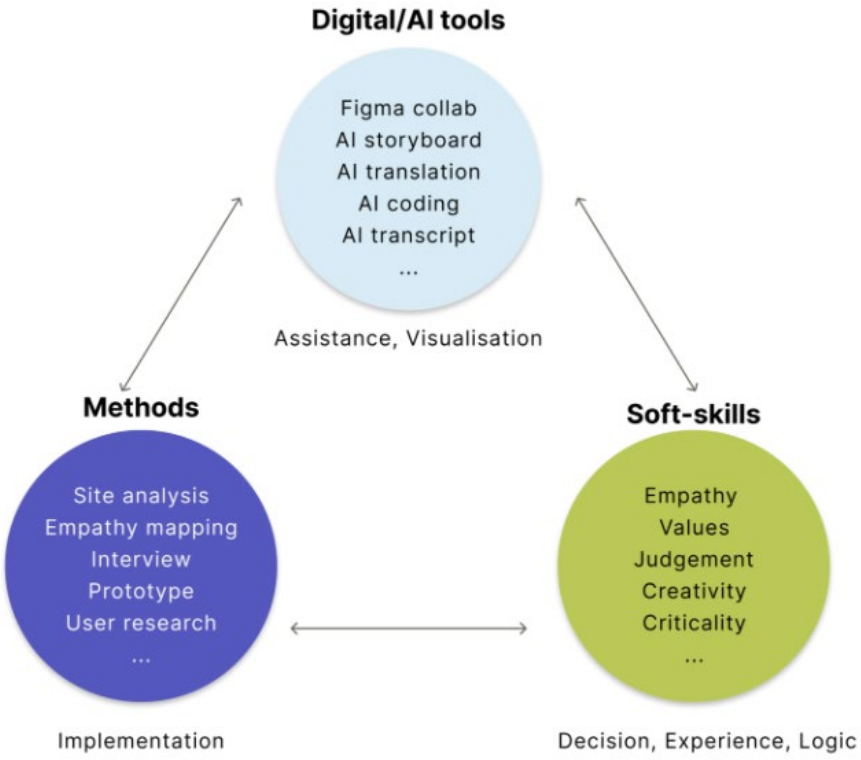

Figure 1. Integrative model of AI tools, methods and soft skills

In combination, these three approaches created a cohesive pedagogical framework that prepared students for real-world design practice. This unit supported students in developing confidence within an AI-enhanced design landscape while maintaining the empathy and criticality that lie at the core of design disciplines.

Outcomes

This case study compared student learning experiences under two assessment models in IDEA9202; a conceptual brief in Semester 2, 2024; and an authentic WIL brief in Semester 1, 2025. Analysis was based on University of Sydney Unit of Study Survey (USS) data from both cohorts.

In 2024, the unit enrolled 189 students with 84 survey responses (n = 84), representing a 44 percent response rate. In 2025, enrolment was 137 students with 46 responses (n = 46), representing a 34% response rate. The 10% difference in response rates required statistical adjustment to ensure fair comparison.

Four key metrics; drawn from 16 USS survey items; were selected for analysis because they most closely reflected the aims of the assessment redesign: human-centred capability, professional relevance and digital literacy. The four metrics are: I developed my ability to think independently about problems; I developed my capacity to respond constructively to challenge; I developed the ability to practically apply knowledge of the field(s) I am studying; I developed my ability to work effectively with digital and online tools and information.

Comparative analysis used mean scores, weighted means and Welch t-tests to account for unequal sample sizes and confirm statistical reliability.

Human-centred design capabilities

The first set of measures focused on human-centred skills, specifically independent thinking and constructive response to challenge.

For the independent thinking item, the 2024 cohort (n = 84) recorded a mean score of 4.16. In 2025, this increased to an adjusted mean of 4.29 (n = 46). For the second human-centred item measuring constructive response to challenge, the mean score rose from 4.14 in 2024 (n = 84) to 4.23 in 2025 (n = 46).

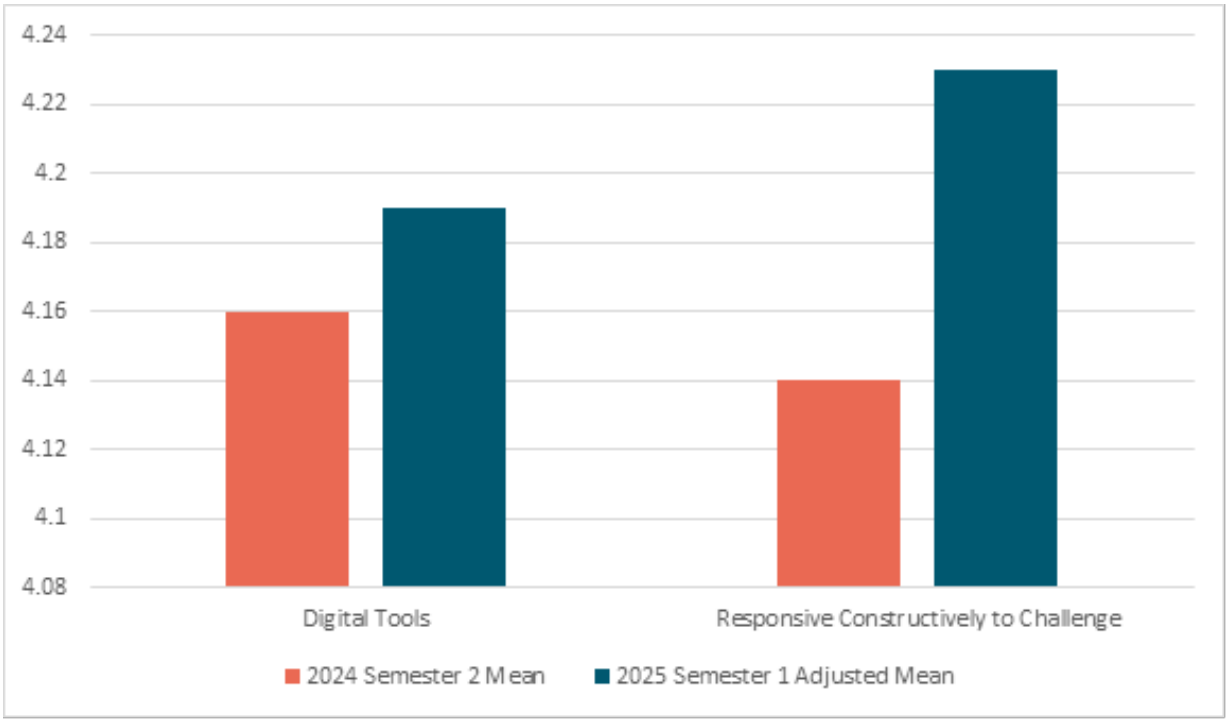

Figure 2: Comparison of human-centred skill indicators with mean scores and counts.

These improvements demonstrate a consistent upward trend in students' perception of their capacity to think critically and respond productively to complex design problems. Qualitative feedback supported this pattern, with students describing the unit as challenging but enjoyable and emphasising the value of hands-on, socially engaged learning activities.

Authentic application and professional relevance

The largest improvement was observed in the item measuring perceived professional relevance and real-world application. In 2024, this item recorded a mean score of 3.89 (n = 84). In 2025, the raw mean increased to 4.22 (n = 46). After adjusting for differences in response rates, the weighted mean for 2025 was calculated as 4.01, with a final adjusted mean of 4.19 following Welch t-test correction. This represents an approximate 4.5% improvement from the weighted baseline of 4.01 to the adjusted value of 4.19, achieved at a 90% confidence level. These findings indicate a meaningful enhancement in students' perception of their ability to apply knowledge in authentic, real-world professional contexts.

Figure 3. Improvement in professional relevance indicator.

Student comments consistently emphasised the importance of investigating clients and sites and understanding how real cases are designed. These responses indicate that interaction with live clients enabled students to connect academic learning with professional practice, strengthening both understanding and motivation.

Digital literacy and adaptability

Measures of digital fluency also showed positive movement. The digital literacy item recorded a mean score of approximately 4.08 in 2024 (n = 84), rising to an adjusted mean of 4.21 in 2025 (n = 46). Students reported that collaborative learning and experimentation with diverse digital tools enhanced their confidence and ability to communicate design ideas effectively.

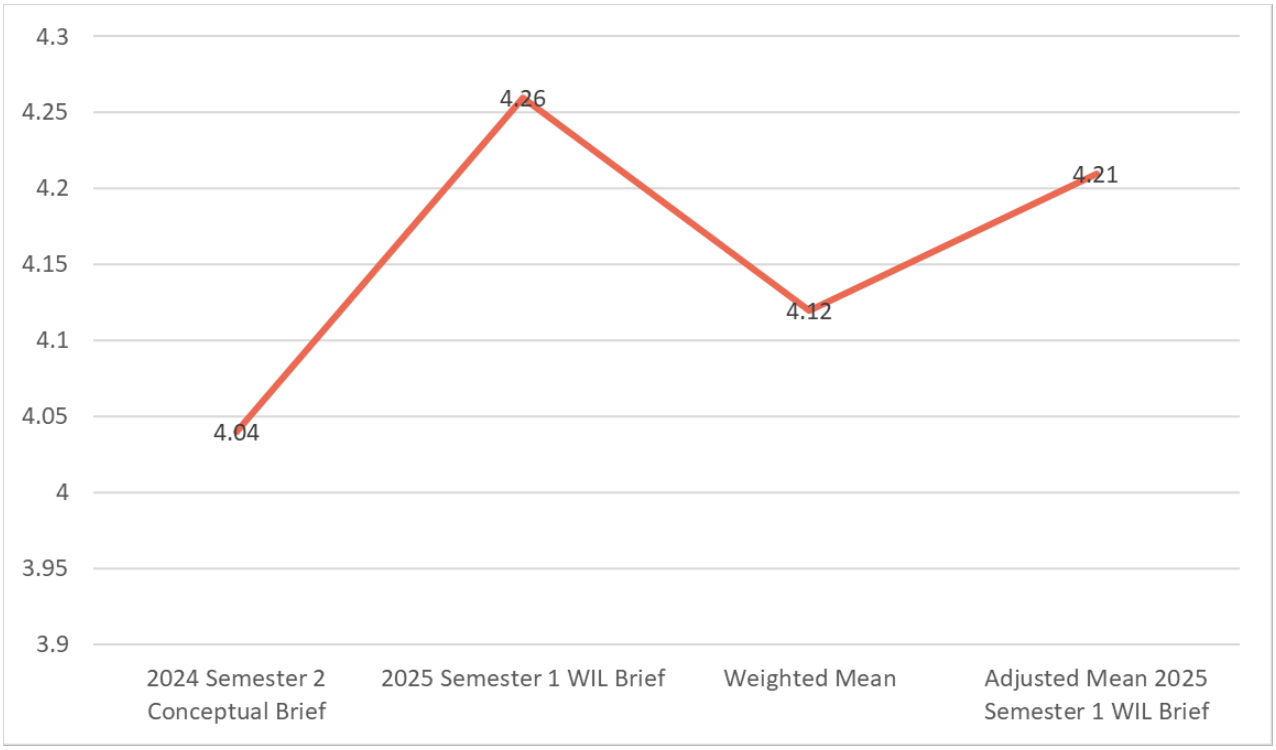

Figure 4. Comparison of digital literacy outcomes across cohorts.

This environment promoted peer-supported learning and practical problem solving rather than tool-driven task completion. Students learned to select digital methods strategically, adapt quickly to new technologies and communicate ideas more effectively through diverse formats. These outcomes indicate growth not only in technical competence but also in critical digital judgement and adaptability; skills essential for professional practice in an AI-augmented design landscape.

Key insights and implications

Across the four analysed metrics, results consistently favoured the authentic assessment cohort. Students showed stronger engagement when learning involved challenge, collaboration and authentic application. The inclusion of live, client-based projects strengthened their ability to apply disciplinary knowledge in meaningful contexts. Integration of diverse digital platforms enhanced creative confidence, methodological flexibility and the capacity to learn new technologies independently.

These outcomes suggest that authentic assessment better supports the development of complex human capabilities that are difficult to automate, including critical thinking, empathy, teamwork and ethical judgement, while simultaneously strengthening digital fluency.

Transferability and future directions

Further development is needed to consolidate and extend these outcomes. Future work should include collecting data across additional cohorts to support longitudinal analysis, incorporating complementary indicators such as client feedback, and refining assessment rubrics to more explicitly recognise process skills and responsible AI use. Expanding industry partnerships and examining which components of the WIL and HCD approach most strongly influence learning will further support ongoing improvement.

This case study raises a broader question for contemporary education: how can institutions balance AI-driven efficiency with the cultivation of human creativity, empathy and ethical judgement? Findings from IDEA9202 suggest that embedding HCD and WIL within assessment offers a constructive pathway forward. Further research may explore how this model can be adapted across disciplines, professional contexts and delivery modes to support more resilient, AI-ready assessment practices.

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