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Paving the runway while landing the plane: Learning designers working across sectors to enable agile curriculum development

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In response to growing demand for flexible, industry-aligned education, learning designers are increasingly taking on strategic roles in complex, cross-sector curriculum initiatives. This paper presents a case study of the Macquarie University (MQ), Faculty of Science and Engineering's Learning Design Team who have played a pivotal role in the development of innovative, stackable micro-credentials for the Institute of Applied Technology – Digital (IAT-D), a unique partnership between MQ, TAFE NSW, University of Technology Sydney (UTS), and Microsoft.

These micro-credentials were co-designed, co-developed, and co-delivered by academic, professional, and industry partners. Brought into the project midstream, the Learning Design Team faced compressed timelines, evolving expectations, and no established processes. In response, they adopted an agile, improvisational approach that epitomised the challenge of "paving the runway while landing the plane" simultaneously building systems and processes whilst delivering outcomes under extremely tight deadlines.

Acting as instructional designers, developers, and project managers, the team consulted with project leadership, guided busy academics, and translated complex requirements into cohesive, student-centred learning experiences. This case highlights the often invisible but vital contributions of learning designers as sense-makers, strategic collaborators, and enablers of educational transformation, working across institutional and sectoral boundaries to make innovation possible.

Keywords: learning design, micro-credentials, cross-sector, e-learning, agile development, third space

Introduction

In response to growing demand for flexible, industry-aligned education, learning designers are increasingly taking on strategic roles in complex, cross-sector curriculum initiatives. This paper presents a descriptive case study of the Macquarie University (MQ) Faculty of Science and Engineering's Learning Design Team, who played a pivotal role in the development of innovative, stackable micro-credentials for the Institute of Applied Technology – Digital (IAT-D), a unique partnership between MQ, TAFE NSW, University of Technology Sydney (UTS), and Microsoft. The case draws on project documentation, design artefacts, and reflective accounts of the Learning Design Team's involvement in IAT-D micro-credential development. It is analysed through the lens of Third Space professionalism (Whitchurch, 2008) and educational leadership as moral and pedagogical responsibility (Connolly, James, & Fertig, 2019). Rather than evaluating outcomes, the purpose is to provide insight into the processes, challenges, and enabling conditions of cross-sector curriculum design, highlighting the evolving role of learning designers in these contexts.

As part of this partnership, Macquarie University's academic and professional staff, along with industry partners, co-design, co-develop and co-deliver micro-credentials in emerging areas such as cybersecurity, artificial intelligence, and cloud computing. They are designed and suited for those looking to up-skill and equip themselves with the knowledge, skills and capabilities to enter these growing fields.

Brought into the project midstream, the Learning Design Team faced a compressed timeline, evolving stakeholder expectations, scope creep, and a lack of established processes. To succeed, they adopted an agile, technology-enabled, improvisational approach that epitomised the challenge of "paving the runway while landing the plane" - simultaneously building systems and processes whilst delivering outcomes under

extremely tight deadlines. Acting as instructional designers, digital developers, and project managers, their work involved consulting with project leadership and senior stakeholders and guiding busy academic colleagues. They translated complex, competing priorities into cohesive, student-centred learning experiences while navigating institutional and sectoral boundaries.

As the team worked to establish its 'ways of working', develop production standards, understand the projects technical requirements, innovate in this new collaborative space, and help wrangle academics and stakeholders with the initial launch date approaching, this metaphor became their lived reality, creating the infrastructure for educational transformation whilst actively implementing that transformation.

This case study highlights the vital, often invisible role of learning designers beyond content production and educational technology, as sense-makers, strategists, and enablers of innovation.

IAT-D: A new model for designing and delivering tertiary education

Macquarie University's partnership in the Institute of Applied Technology – Digital (IAT-D), alongside TAFE NSW, Microsoft, and UTS, is focused on designing and delivering innovative, industry-relevant education that meets the growing demand for digital skills.

Through this collaboration, Macquarie brings its academic expertise and research excellence to the co-design, development, and delivery of micro-credentials delivered by IAT-D at the TAFE Meadowbank campus and online. These flexible, career-focused courses are designed to rapidly upskill learners in new, emerging and high-demand areas such as cybersecurity, artificial intelligence, software development, cloud computing, big data, and data analytics. IAT-D offerings are ideal for students who may already be working, have no formal background in these fields and not willing to commit to the significant time and cost of undergraduate or postgraduate study.

The TAFE Meadowbank campus also features the IAT-D Cyber Range Training Centre (CRTC), a cutting-edge facility that simulates real-world cyber-attack and defence scenarios. The CRTC provides learners with a secure, hands-on training environment to develop and apply practical cybersecurity skills. Built on an isolated network protected by a Cyber Security Operations Centre (CSOC) platform, it enables students to engage in authentic cyber crisis simulations. Simulated attacks on critical infrastructure are made more real by viewing the impact on a 64-square-metre, four-tonne 3D-printed 'mini city' known as 'Anytown'. This mock city and its commercial, residential, transportation and critical infrastructure hubs are affected by the actions of students acting as cyber attackers or defenders. The Macquarie CRTC team comprises up to five software engineers who develop Anytown-CRTC simulations and online labs based on authentic, real-world cybersecurity scenarios. This facility significantly enhances the learning experience for students enrolled in cybersecurity micro-credentials, preparing them for the challenges of modern cyber defence across public and private sectors.

The IAT-D's micro-skills and micro-credentials offer accessible training options, including online and after-hours delivery, and provide new pathways to further study at MQ and partner institutions through credit transfer and articulation into IT degrees. These initiatives and partnerships are in line with the Gonski-Shergold Review (2021), recommendations within the Australian Universities Accord (2024).

The production of each micro-credential involved a collaborative working group comprising MQ academics who were the subject matter experts (SMEs), learning designers, ed-media specialists, and technical experts from the CTRC. Together, this multidisciplinary team was responsible for developing all aspects of the micro-credential, including engaging and interactive eLearning modules, CTRC-led simulations and teaching activities, assessments, and facilitator guides.

Co-Pilots in Uncharted Airspace - Learning Designers as Sense-Makers, Strategists and Enablers

Large-scale, cross-sector collaborations focused on new educational offerings are necessarily ambitious in scope and complexity, involving a wide range of stakeholders including academics, professional staff,

governance bodies, and external partners each bringing distinct expectations, workflows, and constraints. In these settings, Learning Designers often become the "invisible glue" that holds much of the project together. Their role extends beyond content development or technological expertise. These projects require them to make sense of competing priorities, constraints on academic collaborators' time and capacity, and the pedagogical and technical requirements of the initiative.

The Learning Design Team played this key integrative role, focusing on curriculum, assessments, and eLearning in the early stages of the IAT-D project, despite being formally engaged only after initial work had already commenced. In time a dedicated IAT-D curriculum development team was established consisting of the Lead, a Senior Learning Designer, and later, a Learning Designer.

While the partnership had articulated clear high-level goals, operationalising those ambitions required active leadership and a shared sense of educational responsibility. As Connolly, James, and Fertig (2019) argue, educational leadership is defined not by formal authority but by the assumption of moral and pedagogical responsibility. In this context, leadership was enacted through credibility, strategic alignment, and a commitment to quality, demonstrating the essential role of Learning Designers as educational leaders in cross-sector innovation.

Together, the Learning Design Team assumed educational responsibility for interpreting the project's scope, aligning diverse stakeholders, and guiding academic contributions into cohesive and pedagogically sound outputs that met evolving IAT-D requirements. Working backward from project plans and IAT-D's defined synchronous and asynchronous activities, the team identified the various inputs, key deliverables and content to be developed. They then mapped stakeholder tasks, estimated effort and timelines, and identified potential risks both technical and time related that had to be managed and communicated to IAT-D and Macquarie collaborators. To manage the development process, the team adapted a common agile software and eLearning development framework to align key activities with milestones and establish a repeatable process for micro-credential design and delivery.

Despite micro-credentials being an established offering in many universities and training organisations, most academic SMEs were unfamiliar with developing content for this specific format (Thi Ngoc Ha et al., 2022). The planning and design of initial micro-credentials were well underway before to release of The National Microcredentials Framework (2022) which has helped in making clear common requirements and minimum standards. Fortunately, IAT-D micro-credentials were largely compliant due to their deliberate industry focus along with a sound pedagogical approach when planning their design, defining features and quality assurance process.

While many academics had previous experience designing or redesigning curriculum within the University, IAT-D micro-credentials required support from Learning Designers to meet the specific demands of modular, blended eLearning development. Micro-credentials would be delivered in a short six-week period rather than a 13-week semester. Only the most crucial concepts, knowledge and skills applicable to relevant industry work and challenges could be prioritised. A priority of the SME and Learning Designers collaborating was to break down these complex concepts into 'chunked', engaging and informative learning experiences.

And so, at the early stage of the project a small number of academic developers and industry SMEs defaulted to designing content and pacing in line with traditional university units, rather than adapting to the shorter, skills-focused nature of micro-credentials. At that time, many details were still unclear with a consistent IAT-D curriculum framework or set of standards to guide learning design, assessment, or quality assurance. Even the choice of Learning Management System (LMS) a key factor in instructional design was undecided, significantly impacting development choices.

As a result, significant time and effort were required to rework existing content to align with IAT-D's emerging standards and preferred format, which were beginning to take shape. Unlike conventional higher education units, the IAT-D offerings required modular, targeted content delivered through a blended learning model. Learning Designers played a key role in translating broad educational goals into detailed curriculum, supporting the shift from the 'macro' to the 'micro' level (Bennett, Agostinho, & Lockyer, 2017). Another common challenge was that many academic SMEs were accustomed to designing assessment tasks or types

typical in higher education, rather than those aligned with the vocational education and training (VET) sector. This difference in expectation required careful pedagogical translation and redesign, supported by Learning Designers.

To help manage this the Learning Design Team worked to quickly established contact, credibility and influence with academic SMEs. Learning Designers also played a critical role as intermediaries advocating on behalf of academics during negotiations with the IAT-D. They worked to balance the client's expectations and delivery timelines that were beginning to be finalised with the availability and workload of academic staff, many of whom were already fully committed to their standard teaching responsibilities. Simultaneously, the team needed to protect their own workflows. The time and effort required for thoughtful instructional design and eLearning development is frequently underestimated in complex education projects.

To support this balancing act, the Learning Design Team secured representation in relevant working groups. This visibility enabled designers to anticipate challenges, influence decisions, and assess risks and opportunities across the partnership. With a full understanding of timelines, deliverables, and the needs of both the client and academic developers, the Learning Design Team became key enablers of alignment and momentum throughout the project.

To manage the complexity of multiple micro-credential modules, each with its own unique deliverables, content, and deadlines, the Learning Design Team had to adopt a mix of enabling tools. Namely, Notion, a productivity and project management tool, became the central point of truth, supporting workflow visibility, meeting documentation, task tracking, and collaborative project management. Toggl, a time tracking solution, was used to ensure that the estimated level of effort and projected development time were in line with actual time spent on tasks. MS Teams was used as the key communication and coordination tool to enable a dynamic and distributed team working between Macquarie University Wallumattagal Campus, TAFE Meadowbank and Melbourne.

Ultimately, each working group successfully delivered the first tranche of new micro-credential offerings for IAT-D, continuing on to establish a production process that enabled the design and development of more than 25 Macquarie University-designed IAT-D micro-credentials.

Cleared for Landing: The Strategic Role of Learning Designers

The challenges managed and overcome by Learning Designers in this case raise broad questions: What happens when learning designers are not positioned or empowered to perform this integrative and relational work? What if their value is recognised only in terms of technical execution, ability to develop and deliver learning objects, eLearning or materials, rather than their capacity to enhance and shape educational innovation projects?

The success of Macquarie University's IAT-D micro-credential development and delivery of high-quality, stackable credentials would not have been possible without the active engagement and integrative work of its Learning Design Team. Along with the trust and support of Macquarie University's leadership and senior stakeholders associated with the IAT-D partnership, who empowered the Learning Design Team to lead key aspects of the project. This trust allowed them to operate beyond the limits of their formal positional authority, influencing decisions, shaping processes, and driving outcomes to a successful conclusion in ways that reflect the strategic value of professional staff in educational innovation (Southwell et al., 2010).

When empowered as partners, not just producers, Learning Designers become essential enablers of curriculum transformation.

Conclusion

Ultimately, this case study illustrates the challenges and opportunities of cross-sector curriculum design when universities, industry, and vocational education partners collaborate under ambitious timelines and evolving requirements. While the practical focus of the project was on delivering micro-credentials in emerging digital fields, the experience also provides insight into the shifting role of learning designers as Third Space professionals (Whitchurch, 2008). Positioned between academic, professional, and industry domains, learning

designers in this case contributed not only technical and pedagogical expertise but also the integrative work of aligning stakeholders, identifying and negotiating risk and constraints, whilst enabling collaboration and innovation.

Through the lens of educational leadership as responsibility rather than authority (Connolly, James, & Fertig, 2019), the case highlights how leadership was enacted in distributed, situational forms across the project. Learning designers assumed responsibility for educational quality, while academics contributed subject expertise, and project stakeholders defined high-level goals. This distributed leadership model suggests that innovation in higher education may depend less on hierarchical authority and more on the capacity of cross-functional teams to collaborate responsively.

Ultimately, this case provides a compelling vision of learning designers not only as instructional designers, ed-tech experts, or content developers, but as strategic architects of educational transformation, drivers of agile, collaborative, and future-focused tertiary education that better serve students, industry, and institutions alike.

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