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Navigating the Terrain:
Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Insights from co-designing an interdisciplinary programmatic approach for assessment transformations at a research-intensive university in Australia

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This paper conceptualises an interdisciplinary co-design approach for piloting and iteratively implementing programmatic assessment transformations at the University of New South Wales (UNSW). Using systems thinking and co-design principles, we engaged diverse stakeholders across various disciplines to address collective challenges such as overassessment and inadequate feedback. Literature reviews and consultations suggest that programmatic assessment can improve assessment processes and enhance student engagement. The project so far provides insights for higher educational institutions on the importance of collaborative design and continuous feedback, demonstrating the potential of programmatic assessment to align with curricular goals and enhance student learning outcomes.

Keywords: programmatic assessment, co-design collaboration, interdisciplinary education, assessment transformations, framework development

Introduction

Educational assessment is evolving from traditional methods to holistic, learner-centred and competency-based approaches. Programmatic assessment (PA henceforth) is one such approach that emphasises assessment for and as learning (Lindemann et al., 2021) by using multiple low-stakes assessments to provide a comprehensive view of students' learning journeys (van der Vleuten et al., 2014). In addition to reducing assessment overload and enhancing feedback and student engagement, implementing PA can mitigate the impact of Generative Artificial Intelligence (GenAI), as proposed by the Tertiary Education Quality and Standards Agency (TESQA) requirements, while aligning with competency-based curricula (Lodge et al., 2023).

Like many research-intensive universities, the University of New South Wales (UNSW) faces challenges such as overassessment, high cognitive load, inadequate feedback uptake and a lack of authenticity in assessment tasks. To address these challenges, UNSW has established the Programmatic Assessment Working Group (PAW), a centralised team of around fifteen members from different faculties and schools. The PAW's goal is to develop a robust, interdisciplinary and adaptable framework that aligns with curricular goals, enhances student learning, and builds stakeholder trust whilst drawing from literature and collective input from faculty representatives. From the lead education developer's perspective (the first author), this paper details the conceptualisation and collaborative design of an interdisciplinary PA framework at UNSW, along with underlying context and methodology, phases of the co-design process (D1-D5), project insights, and recommendations for similar initiatives.

Our context

UNSW's 2025 Strategy aims to deliver a forward-thinking curriculum that equips graduates with essential skills for dynamic careers. The Pro Vice-Chancellor Education & Student Experience Portfolio Strategy (2021-2025) highlights the role of assessment in shaping the student experience by integrating high-quality learning resources with digital assessment capabilities. However, challenges such as assessment overburden, inadequate feedback, and misalignment with graduate qualities persist, necessitating a re-evaluation of existing practices. In response, UNSW has initiated several centralised initiatives, including the multidisciplinary PAW, which brings together academics and professional staff from various faculties and disciplines to address assessment issues.

The membership included academics, education developers, two chairs, subject matter experts, and an education developer lead. Our collective purpose is to:

1. conceptualise diverse design solutions adaptable to local contexts;
2. pilot testing various design options with programs/ schools interested in reforming their assessment practices;
3. develop collective recommendations to optimise the purpose, process, and outcomes of learning. (Figure 1)
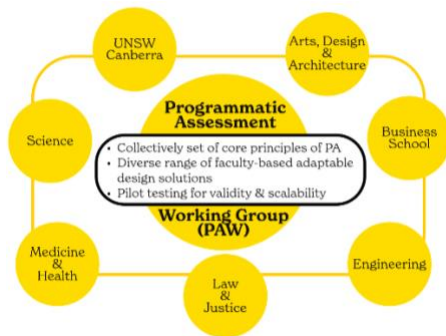

Figure 1. Programmatic Assessment Working Group (PAW) collective purpose

To achieve these objectives, we used a co-design approach considering the diverse needs of the group. (Figure 2)
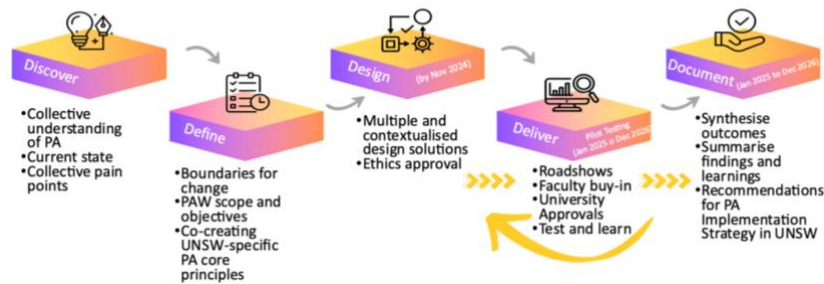

Figure 2. 5Ds – co-design PA approach

Methodology underpinning the co-design process

PAW members collaboratively defined assessment criteria, starting points, graduate profiles, and transformation boundaries. We referred to van der Vleuten et al.'s (2014) fitness-for-purpose model to integrate disciplinary knowledge and interdisciplinary skills like critical thinking and collaboration.

Interactive workshops encourage stakeholder contributions through collaborative sessions (Swan Sein et al., 2020). These workshops build a collective understanding of PA approaches, focusing on cognitive, instructional, and inferential validity to ensure assessments are precise, meaningful, and relevant to real-world applications.

Our framework is based on systems-thinking and modified design-thinking approaches to create adaptable PA fundamentals. The co-design approach, including user-centred design thinking, simplifies complex problems into fundamental truths, ensuring assessment methods are based on essential principles (Farrukh, 2023). First Principles thinking creates solutions from the ground up, supported by backward curricular design to align with program learning outcomes (Baartman et al., 2022).

Iterative design allows for continuous improvement and adaptation, refining assessment strategies based on feedback and data (Roberts et al., 2022). Initial prototypes are created from workshop outcomes and tested through roadshows, faculty sign-ups, university approvals, testing, and ongoing support.

Pellegrino et al.'s validity framework (2016) ensures alignment with instructional goals. We refine these prototypes iteratively for continuous improvement. Trade-offs in assessment design balance reliability, feasibility, and validity. Transparent decision-making fosters stakeholder trust (Schut et al., 2020).

The pilot phase allows us to implement the framework on a small scale, make adjustments based on real-world experiences, and fine-tune it to align with program goals. We document the entire process comprehensively to ensure a robust PA implementation strategy at UNSW.

We describe below, with examples, how the co-design approach was enacted in articulating a PA-based unified approach to discipline-specific contextual issues in assessment systems.

D1: Discover perspectives of PA - current state and collective pain points

The interdisciplinary PA framework at UNSW integrates key perspectives from existing literature to enhance learning and feedback practices. Guided by the consensus statements on PA principles and competency-based frameworks (Heeneman et al., 2021; Holmboe, 2015), the framework emphasises understanding PA models to address assessment challenges effectively. This involves deliberate planning and central governance to optimise learning outcomes and decision-making processes (van der Vleuten et al., 2014). Workshops with PAW members have built a collective understanding of PA approaches, focusing on cognitive, instructional, and inferential validity (Pellegrino et al., 2016).

PA's holistic approach evaluates student learning through longitudinal assessment, multiple assessment methods, and alignment with program goals (van der Vleuten et al., 2014). Despite its benefits, PA faces challenges such as faculty buy-in, workload, and balancing formative and summative purposes (Schut et al., 2020). Emerging findings report positive outcomes in reducing assessment-related stress and addressing tensions (Khanna et al., 2023; Roberts et al., 2022). Implementing PA requires addressing institutional policies, norms, resource allocation, and long-standing beliefs. Key conditions for implementation include capacity building for cultural shifts, systems-thinking for curricular alignment, resource allocation for technology and evaluation strategies, and agile policies for high-stakes decisions using portfolios (Farrukh, 2023; Roberts et al., 2022; Schut et al., 2020). Interdisciplinary education promotes adaptability and critical thinking but requires overcoming disciplinary boundaries and coordinating faculty expertise (Gao et al., 2020; Roberts et al., 2022).

D2: Define change boundaries and co-create core principles for PA at UNSW

In this phase, we defined the scope of PA core principles tailored to UNSW's context by identifying the specific needs and constraints of various faculties and disciplines. For example, the Faculty of Medicine & Health may require comprehensive PA approaches due to the complexity of medical education, while the Faculty of Arts and other Humanities disciplines might need more foundational support as PA is a relatively new to them.

Through collaborative workshops and consultations, we co-create core principles that reflect the diverse educational goals across the university. These principles form the basis for adaptable and scalable assessment models aligned with UNSW's strategic objectives. For instance, the Engineering faculty highlighted the need for practical skills and real-world applications, leading to the inclusion of hands-on project assessments.

The co-creation process emphasises inclusivity and transparency, ensuring all voices are heard and the framework is robust and widely accepted. This approach builds trust among stakeholders and ensures the PA framework is flexible enough to meet the needs of different disciplines, enhancing the overall educational experience at UNSW.

We also aim to define clear assessment criteria and develop initial prototypes based on feedback, guided by van der Vleuten et al.'s (2014) fitness-for-purpose model. These prototypes are iteratively refined through pilot testing and stakeholder feedback.

D3: Design multiple and contextualised design solutions

We developed three design solutions tailored to the diverse needs of different faculties and disciplines at UNSW. For example, the Faculty of Science emphasises research skills and laboratory work, while the Business School focus on case studies and real-world business scenarios.

By piloting these design options, we test their validity and scalability, refining the PA models based on feedback and data. The goal is to create an adaptable framework customised to various program requirements, ensuring

effective assessment methods. This iterative process aims to enhance student learning outcomes and align with UNSW's strategic objectives.

We engage educators, students, and administrative staff through interactive workshops and focus groups to shape assessment criteria and foster commitment. Continuous feedback from the multidisciplinary PAW at UNSW will be used to refine the framework.

D4-D5: Deliver and Document

In the final phases, we deliver the developed PA models and thoroughly document the process and outcomes. During delivery, we implement the pilot-tested PA models across various faculties, providing continuous support and gathering feedback for smooth integration. For instance, two pilot studies on redesigning assessment and underlying curricular framework in School of Photovoltaic and Renewable Energy Engineering and School of Biotechnology and Biomolecular Sciences are underway, with ongoing workshops to address challenges.

Concurrently, we document every step of the implementation process, capturing insights, challenges, and successes. This includes detailed records of stakeholder feedback, iterative refinements, and empirical data collected during the pilot phase. This documentation supports current implementation and serves as a guide for future adaptations and scalability, ensuring the PA framework remains dynamic and responsive to UNSW's evolving educational needs.

Once the revised principles have been agreed upon, we plan further consultations, including prototyping data collation using ePortfolios. This also involves pilot testing and empirical studies across various disciplines, providing insights for further iterative improvements that can be adapted across schools and faculties.

Insights gained and lessons learnt

We have finalised the core principles of our PA framework, which has provided valuable insights into stakeholder interactions and policy landscape, enhancing our understanding of assessment design (Bandelow et al., 2020). Collaboration among education developers, senior leadership, and subject matter experts has been crucial in addressing assessment transformation. Systems thinking has integrated diverse perspectives, addressing the unique needs of various programs. The co-design approach has effectively identified commonalities and differences across disciplines, such as the distinct education design dependencies of professional programs like Medicine, Engineering, and Law compared to generic programs like Science and Humanities. Targeted interdisciplinary rubrics and regular feedback are crucial for assessing both content knowledge and interdisciplinary understanding (Boix Mansilla et al., 2008), fostering metacognition, self-regulation, and continuous improvement, providing students with a holistic view of their progress.

Next Steps

We plan to conduct workshops, showcases, and forums to engage senior leadership in driving changes to university-wide assessment policies. This collaborative approach aims to ensure broad-based support and alignment with strategic objectives, fostering continuous improvement in assessment practices at UNSW. Preliminary findings from the pilot studies will be ready for presentation at the conference.

Conclusion

This paper explores the development and implementation of a PA framework at UNSW to address challenges like overassessment, high cognitive load, inadequate feedback, and a lack of authenticity in assessment tasks. Using a co-design approach, we engaged stakeholders to develop a robust and adaptable PA framework. Key steps in the process included initial stakeholder consultations to identify pain points, iterative design workshops to develop and refine assessment models, and pilot testing to gather real-world feedback.

Our findings highlight the importance of intentional rubrics and continuous feedback in fostering interdisciplinary learning. The PA framework at UNSW shows the potential to improve student outcomes and better prepare them for the complexities of the modern world. We recommend this interdisciplinary and co-

design approach, led by a diverse leadership group, such as senior executives, subject matter experts, and education developers, as adaptable to other universities and educational institutions. Future research should explore the long-term impact and applicability of the PA framework in other educational contexts, investigating its scalability and effectiveness in diverse educational settings.

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