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Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

InnovatEd: A Model for Supporting Innovation in Educational Technology in Tertiary Settings

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The Melbourne InnovatEd program at the University of Melbourne supports innovation in educational technology, addressing the crucial need for innovative solutions in teaching and learning in higher education. By fostering a holistic approach, InnovatEd empowers educators and students to identify problems and devise impactful solutions. Established in 2019, the program offers a Bootcamp and an Incubation Funding Program, providing space, tools, support, and funding pathways. The Bootcamp engages participants in developing innovation skills, while the Incubation Program offers tailored support to bring ideas to fruition. Over five years, InnovatEd has supported 23 teams, enhancing teaching and learning through EdTech. The program has successfully cultivated connections within the University and industry, facilitating real-world project development and fostering an entrepreneurial mindset. Innovation programs in large organisations, such as InnovatEd, face challenges such as ensuring technology sustainability, providing post-program support, and addressing cultural barriers. InnovatEd aims to establish robust support structures and promote continuous innovation, essential for improving education in the age of AI.

Keywords: Innovation in Higher Education, Education Technology, Teaching and Learning, AI in Education, Design Thinking

Introduction

In today's rapidly evolving educational landscape, innovation in higher education is more crucial than ever. A holistic approach is essential for fostering innovation in higher education (Jakovljevic, 2020), recognising that educators and students are ideally positioned to identify problems and devise solutions and often do so on their own initiative

Broadly, innovation involves generating, adopting, and applying new, value-adding ideas. In higher education, Kiss and Vass (2019) define it as using information, creativity, and initiative to drive transformative changes in teaching, learning, and institutional culture. They emphasise innovation’s role in addressing the evolving needs & expectations of students and staff.

The use of design thinking enhances innovation within universities by fostering creativity (Lameta & Luisi, 2023). Its integration with entrepreneurship education has been shown to promote problem-solving and student engagement (Zhang & Liu, 2020). Additionally, university-based incubators help develop technological capabilities by leveraging resources and networks, increasing success (Loganathan & Hillemane, 2021). However, inadequate support, funding, and hierarchical structures can hinder innovation (Jakovljevic, 2020). To overcome these barriers, fostering networks, team-based workshops, and internal support structures are crucial (Stasewitsch et al., 2022). As the integration of artificial intelligence (AI) becomes more prevalent in education, cultivating an innovative mindset and experimenting with AI-driven methodologies is increasingly important (Robert & Muscanell, 2023).

Research context

The Melbourne InnovatEd program, launched in 2019 following a recommendation from the Flexible Academic Programming Project (FlexAP), aims to drive EdTech innovation at the University of Melbourne. FlexAP was a key strategy for addressing teaching and learning priorities by overcoming challenges in delivering high-quality educational experiences. InnovatEd supports this by promoting the development and adoption of EdTech solutions among staff, students, and alumni. InnovatEd provides space, tools, support, and funding to integrate these innovations into the university ecosystem. Now part of the Melbourne Entrepreneurial Centre (MEC), InnovatEd leverages a unique innovation precinct and extensive networks to foster innovation. The purpose of this paper is to share key features of InnovatEd with the higher education community, offering insights on how institutions can foster innovation and cultivate innovative mindsets among staff and students to enhance teaching and learning.

Methodology

The InnovatEd program at the University of Melbourne is designed to empower staff, students, and alumni to transform education and improve student experiences through the development of educational technology (EdTech) innovations. The program aims to foster the creation and adoption of EdTech solutions both within the University and beyond. To achieve these objectives, InnovatEd operates two key activities: the InnovatEd Bootcamp and the InnovatEd Incubation Program.

InnovatEd Bootcamp

The InnovatEd Bootcamp is an immersive program that engages the broader University community in innovation around teaching and learning and assessment. It creates an environment conducive to skill development, collaboration, and networking. Participants, including academic and professional staff, students, and alumni, explore educational technology through a Design Thinking framework. The Bootcamp facilitates a hands-on approach where participants learn to identify educational challenges, engage stakeholders, refine solutions, develop prototypes, and pitch their ideas. This structured process encourages creative problem-solving and equips participants with the skills necessary to innovate in teaching and learning practices.

InnovatEd Incubation Program

The InnovatEd Incubation Program provides 12 months of structured support, including workshops, one-on-one coaching, regular feedback, and networking. Teams develop detailed project plans with milestones and gain access to University stakeholders for testing and trials. A key benefit is the collaboration with the Computing and Information Systems School, where Master of IT students assist teams with limited software development experience, helping to create minimum viable products (MVPs) (Samson & Oliveira, 2023). This partnership benefits both students and InnovatEd teams.

Results

InnovatEd Bootcamp promotes development of innovation skills

Over the past three years, nearly 300 applications have been received for the InnovatEd Bootcamp. The Bootcamp fosters connection and networking while promoting an engaging environment for problem solving and innovation. Participants consistently report significant skill development in a dynamic setting. A 2023 feedback survey with 37 responses yielded an average recommendation score of 9 out of 10 and a Net Promoter Score (NPS) of 62.16, indicating a highly positive experience. Participants demonstrated substantial improvements in their innovation skills from pre- to post-Bootcamp, underscoring the program's effectiveness.

Table 1

Bootcamp participants self-reported innovation skills pre and post-Bootcamp

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On a scale of 0-10 what is your level of understanding in the following areas:	Pre-Bootcamp	Post-Bootcamp
Understanding the steps for innovative problem solving	5.27	8.27
How to pitch an idea	4.9	8.46
Applying entrepreneurial skills to solve a problem	5	8
Understanding ways to apply design thinking for creating edtech in the tertiary setting	4.67	8.03

InnovatEd Incubation Funding Program supports University community to develop innovative education technologies

Over five years, the program has supported 23 teams, funding 4-5 annually. Entry is competitive, with a committee selecting promising projects that address tertiary education challenges. Teams, comprising staff, students, and alumni, receive structured support through workshops, coaching, feedback, and networking to develop 12-month plans with milestones. Participants also connect with EdTech experts, present at events, and engage with investors for continued support.

Table 2

Recently supported InnovatEd projects/teams

Project	Current Status
Sindy Labs: An AI-powered teaching assistant for student competency and academic integrity.	Trialled in the Faculty of Science at the University of Melbourne. Participated in a prestigious USA accelerator program and have had discussions with edtech investors.
UniConnectED: Connects universities, students, and industry partners to improve employability and address workforce challenges.	Currently being trialed in the Faculty of Education, with plans for integration across the University of Melbourne being devised.
Biologic is a software tool for teaching and assessing logical thinking in the sciences, allowing for new ways to assess scientific concepts and automated marking.	Currently trialed in the Faculty of Science at the University of Melbourne, with 92% of students report it helps them learn scientific concepts better.
Creative Learning Units for Education (CLU-Es) A web application for innovating assessments to align learning outcomes with real-world applications, better preparing students for today's job market challenges.	Under stage 2 development, with trials set for the second half of 2024.
Elucidate Education A gamified mobile app for disadvantaged secondary students to incentivise daily learning and encourage a broader range of students applying for and entering University.	The app is under development with a trial set to begin at Craigieburn Secondary College, Victoria in August 2024.
Deckle A student-designed app to foster connections at large events, enhancing the student experience at universities.	Used across the University of Melbourne (including at Orientation Week) & 41 other academic institutions worldwide. In discussions with edtech investors.
Otaro An AI-powered VR and AR learning platform for universities and industry training.	Trialled in the Faculty of MDHS at the University of Melbourne and Swinburne University, used by multiple industry partners.
Aptonow an AI-assisted timetabling software empowering personalised learning experiences at-scale & optimising operational efficiency and effectiveness	Trialled by multiple Australian universities, advised by University of Melbourne timetabling experts, and in discussions with edtech investors.
Illume An intern matching and work skill development platform connecting university students with startups.	Placed up to 100 students in internships within start-up companies, some students have achieved paid employment as a direct result of this platform.

RESN a not-for-profit student network that offers rural and regional students free educational support.	Have provided over 3000 students with academic support
ENGINED – An interactive learning platform for chemical engineering, transforming traditional lectures to learn through gameplay.	Trialled in the Faculty of Engineering and IT (FEIT)
3D whiteboard A 3D annotation tool for teaching real and virtual objects, enabling real-time interaction.	Trialled in the Faculty of MDHS and in use in the Faculty of Architecture, Building, and Planning at the University of Melbourne.
Intellijourney An analytic tool for learning environments that provides customised analytic and reporting services to educational institutions, enhancing student experience and improving their transition to the workforce.	Trialled in the Faculty of Engineering and IT (FEIT) and is now being used in FEIT industry-based subjects. Dashboards trialed with Canvas & compatible with other Learning Management Systems.
eOSCE: an automated feedback application for grading in large University subjects	Co-developed with central university services, multiple trials in the Faculty of MDHS at the University of Melbourne, with plans for integration across the University of Melbourne being devised.

Participant Feedback

The experience of teams undertaking the InnovatEd program has been overwhelmingly positive. Survey responses highlight several key aspects that provide the most value:

- **Connections and Networks**: Access to extensive networks and connections within the University and more broadly helps teams navigate their projects effectively.
- **One-on-One Coaching**: Personalised coaching keeps projects on track and ensures progress.
- **In-Program Connections**: Connecting with others on the same journey fosters a supportive and collaborative environment.

Participants responded enthusiastically when asked if they would recommend the InnovatEd Funding Program:

- 'One million percent!'
- 'Yes, definitely. I already have'
- 'A big yes!'
- 'Yes - do it.'

This feedback underscores the program's effectiveness in supporting innovation and providing valuable resources and connections.

Discussion

The InnovatEd program fosters innovation and an entrepreneurial mindset at the University of Melbourne through two initiatives: the Bootcamp and the Incubation Funding Program. These initiatives help participants, including students, staff, and alumni, develop educational technology (EdTech) solutions that transform teaching and learning. However, ensuring the long-term success of these innovations presents challenges.

InnovatEd Bootcamp: Fostering Innovation Skills

The Bootcamp introduces participants to innovation through **Design Thinking**, equipping them with essential problem-solving and entrepreneurial skills. This hands-on approach encourages critical thinking and the development of EdTech prototypes, preparing educators to navigate rapid changes in education, such as the rise of AI. Embedding an innovation mindset in academic culture remains a key long-term goal.

InnovatEd Incubation Program: Ongoing Support

The Incubation Program provides structured support through workshops, coaching, and milestone tracking to help teams bring ideas to life, including developing minimum viable products (MVPs). Collaborating with the Computing and Information Systems School helps bridge technical skill gaps. However, for innovations to

thrive, ongoing support is critical. Challenges such as maintaining momentum, the slow adoption of new practices, and the need for post-program follow on funding requires institutional backing to prevent the innovation valley of death. A sustainable support infrastructure for new technology adoption within the University is key to fully integrating EdTech innovations.

In conclusion, while InnovatEd effectively fosters innovation, long-term success depends on addressing challenges like sustainability, supporting academics with limited tech skills, and providing post-program support. Overcoming these barriers will help further embed a culture of innovation and entrepreneurship at the University. Future research could explore replicating the InnovatEd framework at other universities to assess its adaptability in different contexts. More qualitative studies and expanded data collection methods, such as interviews, focus groups, and longitudinal tracking, would provide deeper insights into how innovation skills are developed and sustained. Additionally, involving a broader range of participants, including industry partners and non-technical academics, could help understand the collaborative dynamics that drive successful EdTech innovations in higher education.

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