

Developing and strengthening co-design partnerships with industries - a whole of school approach

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ABSTRACT

CONTEXT

Preparing graduates for a dynamic job market is the challenge Universities are facing in today's rapidly changing landscape. To seek for ways to address the challenge, the School of Engineering, Design & Built Environment (SoEDBE) at Western Sydney University (WSU) has embraced a collaborative approach with industries, leveraging on the Commonwealth Government's National Priorities and Industry Linkage Fund (NPILF) project. The self-proposed metrics for the NPILF project was - 67% of all programs offered by the School will be co-designed with industry partners and students enrolled in these programs by the end of the project cycle in 2024.

PURPOSE OR GOAL

Co-designing a subject or a program with industry partners has become a common practice in universities. However, scaling up changes at the whole of School level can be a complex and demanding task. The difficulty lies in addressing and balancing various interconnected factors such as curriculum readiness, resource allocation, stakeholder buy-in, staff development and other competing priorities. This paper presents the design and implementation of a three-phase approach (subject-based, theme-based, and program-based), aiming to address these challenges in a systematic and sustainable manner. The paper discusses how the subsequent phases were developed using the feedback from the prior phase.

APPROACH OR METHODOLOGY/METHODS

SoEDBE has consciously adopted Partnership Pedagogy (Barrie and Pizzica, 2019) as the core curriculum principle. The partnership table is employed as a tool to capture activities and partners' involvements at different stages, including co-design, co-develop, co-deliver and co-assess. Curriculum changes are mapped, thematized and visualised.

ACTUAL OR ANTICIPATED OUTCOMES

The third phase of the co-design project kicked off in April 2023. It is expected to be completed by the end of the year. Phase three has adopted program-based approach, with 13 programs planned to be co-designed, in addition to 2 co-designed programs being enhanced. By the end of phase 3, 30 out of 34 programs (88.2%) would have been co-designed with industry as partners.

CONCLUSIONS/RECOMMENDATIONS/SUMMARY

Apart from curriculum changes, the project has also captured valuable experience of implementing a large-scale project while identifying, engaging, and interacting with industry partners. This paper outlines the lessons learnt from each phase as well as experience gained in terms of creating distinctiveness in curriculum elements through the co-design process.

KEYWORDS

Partnership Pedagogy, Employability, Co-design

Introduction

Preparing graduates for a dynamic job market is the challenge Universities are facing in today's rapidly changing landscape. To seek for ways to address the challenge, the School of Engineering, Design & Built Environment (SoEDBE) at Western Sydney University (WSU) has embraced a collaborative approach with industries, leveraging on the Commonwealth Government funded the National Priorities and Industry Linkage Fund (NPILF) project. The self-proposed metrics for the NPILF project was - at least 67% SoEDBE programs will be co-designed with industry as partners and students enrolled in these programs by the end of the project cycle in 2024.

Co-designing subjects or programs with industry partners has become a common practice in universities [Shrivastava et al., 2022]. However, scaling up changes at School level can be a complex and demanding task. The difficulty lies in addressing and balancing various interconnected factors such as curriculum readiness, resource allocation, stakeholder buy-in, staff development and other competing priorities. This paper presents the design and implementation of a three-phase approach (subject-based, theme-based, and program-based), aiming to address these challenges in a systematic and sustainable manner. The paper discusses how the subsequent phases were developed using the feedback from the prior phase.

Process

The School has adopted a multi-phase approach (subject-based, skill-based, and program-based), aiming to address the challenges in a systematic and sustainable manner. Lessons learnt from each phase were used to improve the subsequent phase.

Phase one of the project started in May 2022. This Phase adopted subject-based approach. A total of 18 subjects across eight different programs were co-designed with industry partners. Subject coordinators reached out, through their own network connections, and invited industry partners to co-design their subjects. The development requirements were created based on student feedback, changes in industry needs and subject enhancement priorities. A two-day hackathon style workshop was organised by the School, bringing together industry partners, academics, professional staff and the academic leadership team. After a series of structured and semi-structured activities, individual subject coordinators worked with their own industry partners and educational advisors to complete curriculum development following the format of breakout groups and subsequent follow-ups.

Phase two of the project commenced in the second half of 2022. Nine programs spanning two different disciplines and covering both undergraduate and postgraduate levels were included in this phase. Learnings from the first phase and feedback from industry partners were used to shape and inform design and implementation of the second phase. The focus of phase two was transferrable skills. Industry partners helped the School to identify four key transferrable skills to improve graduate employability – (i) teamwork, (ii) report writing, (iii) oral communication, and (iv) visual communication skills. A full day co-design event was held by the School, bringing together 15 industry partners, 23 academics and 10 professional staff. Working in skill-based teams, workshop participants shared viewpoints, exchanged ideas and co-designed learning activities focusing on developing and enhancing transferrable skills of students. Subject coordinators then followed up with connected industry partner(s) to revise and finalise required curriculum changes. By the end of March 2023, 14 subjects across nine programs were co-designed with industry as partners.

Phase three of the co-design project kicked off in April 2023. Using the learnings from the first two phases and the feedback from academics and industry partners, this phase adopted program-based approach. A total of 13 programs are being co-designed and two previously co-designed programs are being enhanced. Directors of Academic Programs have been proactively taking the lead in this phase. They have identified the curriculum development priorities for their

own programs by conducting co-design need analysis and resources planning. The following key priorities have been included.

- reviewing and revising curriculum in response to recent industry/regulation/ accreditation changes
- creating distinctiveness and improving competitiveness of the program in collaboration with the industry partners
- strengthening existing partnerships and fostering new partnerships
- purposefully and meaningfully embedding sustainability and indigenous leadership graduate attributes with input from industry partners
- enhancing the design and delivery of work-integrated-learning (WIL) elements of the programs, and
- enhancing internship experience and outcomes.

Phase three is expected to be completed by the end of 2023. By then, 30 out of 34 programs (88.2%) would have been co-designed with industry as partners. The project will then move on to review and evaluation phase in 2024.

Results

Curriculum changes

The need for collaboration between universities and the industry is gaining increasing importance. Such collaboration not only ensures industry relevance of curriculum being delivered (Plewa et al., 2015), but also provides a platform to generate and promote innovation through knowledge exchange (Sjöo and Hellström 2019). The ultimate outcome is improvement in employability of graduates, the principal aim of the NPILF project.

In SoEDBE, industry partners have long been contributing to curriculum delivery and curriculum improvement processes in the forms of external advisory committees, guest lectures, site visits and teaching as casual staff members. The NPILF project helped to forge a deeper engagement between academics and industry partners. Partnership Pedagogy (Barrie and Pizzica, 2019) has been adopted as the core curriculum principle. The partnership pedagogy table (Table 1 provides the skeleton of the PP Table) is employed as a tool to capture activities and partner involvements at different stages, including co-design, co-develop, co-deliver and co-assess.

Table 1. Partnership Pedagogy Table (skeleton)

Activity	Partner and Purpose	Evidence of commitment to the partnership	Outline of involvement
Co-Design			
Co-Develop			
Co-Deliver			
Co-Assess			
Co-Credential			

A summary is provided below based on the results from the first two phases, where 32 subjects from 17 different programs were co-designed with industry as partners.

- Barrie and Pizzica (2019) defined **co-design** as a key stage “where the overall conception of the curriculum is thought through” (p148). It is the stage where academics and partners formulate the goals and purpose of the program or the subject via ongoing dialogue. By the end of phase one and phase two of the project, 32 subjects have been co-designed with industry partners. Most of the activities were designed by revisiting the relevance and currency of existing curriculum and by identifying the gaps and areas for improvements. It set a solid foundation for articulating learning outcomes, selecting pedagogy, planning for resource development and revising assessments.
- **Co-develop** refers to development and production of new learning resources or revision and repurposing of existing artefacts with partners (Barrie and Pizzica, 2019). So far, 23 out of 32 co-designed subjects reported co-developing curriculum resources by collaborating with industry partners. Common practices included creating video resources as part of online lectures, providing students with access to tools and platforms that are being used in the industry, revising case studies to reflect recent changes in the industry, creating complex problems as well as revising project design and brief by using authentic real world project data and information.
- **Co-deliver** refers to any format of program delivery that involves collaborating with partners, ranging from guest lectures to industry placements (Barrie and Pizzica, 2019). In this project, so far, 24 out of 32 co-designed subjects reported co-delivering curriculum elements or teaching with industry partners. Whilst the most popular formats are still guest lectures and co-supervision of research or placement students, it has been reported that the industry partners helped to take tutorials outside the classroom by taking advantages of the advancement in technologies. Instead of coming into the campus for lecture delivery, more and more partners are delivering presentations in the field or using AR/VR technologies.
- **Co-assess** means “partners collaborate in designing assessment tasks and standards both on-and off campus, setting questions, determining criteria, marking and supervising assessment activities” (Barrie and Pizzica, 2019, p148). So far, 20 out of 32 co-designed subjects reported co-assessing activities with industry partners. The most evident change was when academics collaborated with industry partners to convert traditional assessment tasks into scenario based assessments using real-world authentic cases. Authentic assessment focuses on students using and applying knowledge and skills in real-life settings. Working with industry partners, academics have started to convert quizzes and exams into applied projects and professional tasks, which has helped students see relevance of their studies and produce artefacts that they can use for job interviews. Industry partners also helped to review existing project tasks and contextualize academic questions into real-life scenarios. Passionate experts from industry also helped to create memorable and impactful assessment experience for students, where students not only complete authentic real-life tasks but also receive feedback directly from practising professionals. Three of the co-designed subjects added pitches and competitive elements as add-on incentives to assessment design, moving from “assessment of learning” to “assessment as learning.”

Although all curriculum changes have been reported and recorded by following an analytical format of co-design, co-develop, co-deliver and co-assess, industry engagement in co-design needs to be improved. One way to achieve this is through partner contributions throughout the curriculum design stages, making co-design to be holistic and outcome to be through genuine collaborations. Embedding industry partner presence, guidance, and expertise throughout the subject is particularly valuable for engaging students in developing transferable skills. In those

subjects taking a holistic co-design approach, industry partners are co-developing resources or curated information on the importance of transferable skills through the lens of future employers. Industry partners are also helping to create assessment project briefs, co-review marking rubric and deliver formative assessment feedback as expert panellists.

Partnership development, recognition of contributions and partnership sustainability

The partnership between universities and industry has been perceived to enhance innovation (Ankrah & AL-Tabbaa, 2015) or, in a more practical way, transforming research into products and services. The value of the partnership has also been recognised in curriculum design for better student opportunities and graduate outcomes (Plewa et al., 2015).

At the beginning of the project, academics were not sure where to find partners (and who are eligible curriculum development partners) even though the importance of having industry expertise into curriculum design has been widely recognised for some time. In phase one, partners from academics' personal networks and the recommendations from the Associate Dean (Learning & Teaching) were used to identify partners and approach them. Industry partners attended the two-day hackathon style workshop with subject coordinators, School L&T Leadership and Professional staff from different Divisions within the university. The outcome was co-design of 18 subjects across eight different programs. A Qualtrics survey of the attendees was conducted, the feedback showing that it is much more beneficial to have the conversation to be held in a team format. Response from the industry partners also indicated that the focus on transferrable skills will be much more beneficial at this stage of the project, as this will have tangible benefits to both the students and the industry through production of graduates who are better prepared for the industry. This feedback shaped the theme for the second phase of the project and industry partners were engaged accordingly.

In-depth and wider collaborations between industry partners and academics were the highlights of the second phase, transferrable skills being the theme used for this phase. However, developing generic/ transferrable skills also meant some partners did not have personal connections with subject coordinators or have deep interests in a particular discipline. The difficulty was to maintain and sustain the partnership on a long-term basis. After the event, some partners disengaged working on the subject because of lack of immediate personal connections or interests in the discipline.

By combining experiences from both phase one and two, phase three has adopted program-based approach. For each program, the School carefully scanned for industry experts who are genuinely interested in university education, in graduate quality and the future of the industry. Specifically, industry partners have been selected who are,

- interested in lifting /maintaining professional standards for practitioners;
- interested in contributing to professional development as a mentor/coach;
- hiring graduates and interested in improving graduate employability;
- interested in university curriculum and education design; and
- associated with the University (e.g. alumni, having research connection, etc.).

The School will find ways to acknowledge the contributions made by industry partners. Some examples being considered include, issuing a certificate and a thank you letter from the Dean. For partners who make outstanding contributions, "industry curriculum fellowships" awards at the university level are being considered.

The School is also exploring ways of building partnerships at the organisational level. These partnerships will be developed based on shared missions and values.

Future Directions

It is acknowledged that phase two was only a starting point for developing transferable skills in collaboration with industry partners. Further support for staff development and curriculum mapping is required. Some other considerations/concerns include,

- increased marking load for staff and assessment time allocations during class – this is the result of the feedback received on increase on workload for proper implementation of the project outcome
- staff development in curriculum design for transferable skills
- sustainability of assessment design and delivery when authentic/complex cases for assessments are required to be updated on a regular basis
- sustainability of assessment delivery when industry partners are involved in co-assessing

The third phase will help create new models of partnership development. A survey will be sent out to all industry partners who engaged in the third phase. The future directions of the project will be shaped by the outcome of this survey and student response to what has already been implemented. A thorough evaluation of the co-design project will be conducted 2024 when exemplars will be developed and curated for the university to embed co-design in its curriculum design process, making co-design to be Business As Usual (BAU).

Reflections

Whilst more findings will be presented by the end of phase 3 and final recommendations will be made after the evaluation stage, there are two main themes and reflections at this stage –

- Who are our partners and who should be our partners?
It is important to include different perspectives from industry partners by having experts representing different areas, including accreditation and regulation bodies, governments, professional associations, employers, experienced practitioners and new/emerging businesses. Sourcing and securing sustainable partnerships require inputs and efforts not only from the academics and course leaders but also from the School/ Faculty and the institution.
- Development for program leaders and academics
Collaborating effectively with industry partners requires visions and skills from program leaders and academics. It requires program leaders to acutely identify areas for collaboration, match curriculum development priorities with industry expertise, lead and guide the collaboration process, and finally, ably translating experts inputs into actions. Key skills to facilitate the process include, but not limited to, strategic and systems thinking skills, project management skills and communication skills. In addition, collaborations will be more productive when program leaders and academics can succinctly articulate curriculum narratives for their programs. It is similar to promoting personal branding skills among researchers. Program leaders and academics need to be able to explain distinctiveness and significance of their programs with a strong focus on clarity, consistency and connectedness.

Other emerging themes and reflections at this stage include establishing a sustainable approach by standardising co-design approach with budgets and workload allocations. Higher education sector in Australia is facing many challenges, such as digital transformation, student enrolment and retention and an increased focus on graduate employability. Whilst most universities will release strategies from the top, academics are the taskforce at the coalface to implement such strategies. As a result, changes need to be made in order to clarify new or revised responsibilities in different academics roles, provide trainings and support and recognise achievements.

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