

# ASCILITE 2023

*People, Partnerships and Pedagogies*

## University learning partnerships: Enhancing learning, enabling innovation and addressing challenges in schools

**Amanda Samson and Eduardo Araujo Oliveira**

The University of Melbourne, Australia.

Universities hold a significant advantage in the development of enterprising learning partnerships where internal and intentional collaboration can assist in addressing complex problems. Building a collaborative learning partnership between faculties enhances learning, removes blocks to enterprise and addresses industry problems. The learning partnership developed in this collaboration included academic staff from two different faculties, a team of students as well as input from external stakeholders including schools and pre-service teacher candidates. The approach included digital expertise and developmental pedagogies; with a shared outcome designed to meet the enterprise goals of the industry's partner. The student team developed confidence and capacity in their ability to communicate with the industry partner as they were encouraged to be creative, equal participants with the agency to take risks and problem solve. The tangible outcome was the delivery of a minimum viable product that has potential to address issues around teacher shortage and other limits to school resourcing. Learning partnerships within universities facilitate authentic learning and encouraged enterprise.

Keywords: learning partnerships, university collaboration, academia and industry, enterprise and education

### Introduction

Universities hold a significant advantage in the development of enterprising learning partnerships where internal and intentional collaboration can assist in addressing complex problems while facilitating learning. The benefits of these learning partnerships are further enhanced when student work is supported by the course leaders as well as staff with discipline expertise in education from another faculty of the university. Additionally, these collaborative partnerships often remove the need for significant funding and resourcing that might otherwise block enterprise and creative projects. Building a collaborative learning partnership between the Faculty of Education (FoE) and the Faculty of Engineering and Information Technology (FEIT) held the potential to realise an engagement project that would benefit the learning of university students enrolled in the School of Computing and Information Systems (CIS) Master's of IT program, University of Melbourne. We were interested in the nexus this learning partnership would create; university student engagement of an authentic workplace project, industry partners with expertise in pedagogy, an enterprise problem that needed addressing and the lens of offering intentional learning opportunities for the CIS students to improve their communication, collaboration, and enterprise skills. In this context, FoE partnered with students from CIS undertaking the Software Project final year advanced specialisation subject (COMP90082), to collaboratively address challenges that schools face through the development of UOMRecruitED software. This software is designed to create a single point of contact between the external industry partners (schools) and the students in the FoE. In this way, collaboration and communication can occur in a direct and mutually beneficial manner with the intention of reducing pressures in schools around staffing, increasing pre-service teachers' experience and creating an avenue for developing reciprocal relationships between the University of Melbourne and external partners. In addition, CIS students cultivate the professional competencies they require when moving from study to work. This paper discusses this collaboration, and implications of the developed partnership software, which will be trialed towards the end of 2023.

### Teacher shortages and workload

Research into the way teaching is perceived indicates that addressing the needs of current teachers, particularly those who are several years into their career is as important as supporting the early career graduates (Longmuir et al., 2022). The potential for a negative cycle, where there has been a decline from 2019 to 2022 in teachers recommending it as a career, and with more than two thirds recommending against it is also of concern for educational leaders looking to plan for the needs of future students and their schools. The contributing reasons for teacher dissatisfaction are common across both government and academic research. In addition to feelings of low appreciation or being undervalued (Longmuir et al., 2022; Mockler, 2018), workload is the most significant

negative factor in teachers' perception of their role. In Australia over eighty six percent of teachers think their workload is unmanageable, and the recent OECD TALIS report into Teachers and School Leaders (OECD, 2019) illustrates the expectations on teachers far outweigh their job description. The flurry of recent reports indicates the urgency of addressing the teacher shortage and improving the future pipeline of teachers. The National Teacher Workforce Action Plan (2022) which followed the Teacher Workforce Shortages Issue Paper (2022), offered five priority areas: (i) improving teacher supply; (ii) strengthening initial teacher education; (iii) keeping the teachers we have; (iv) elevating the profession, and (v) better understanding future teacher workforce needs. Initial Teacher Education (ITE) courses have gained attention (Teacher Education Expert Panel Discussion Paper) though the pejorative stance of assumed quality will do little to encourage future students. Yet there has been little attention on the eminently practical ways in which ITE provider initiatives, through enterprise lens, could offer immediate and practical solutions for educational leaders struggling to address the two crucial and related areas of staff shortage and teacher workload. Considering ways in which teacher candidates could improve their understanding and be better prepared for a career in education, improve working conditions through reducing the pressure on current staff to undertake non-teaching related duties and help relieve the pressure of finding staff, prompted the idea of the engagement project. Through providing direct and easy access to ITE students seeking education related employment, this engagement project offers a platform for educational leaders to identify dedicated and invested staff while also, at least in part, addressing the need for ITE students to engage in professional experience beyond the classroom, and be paid for it as well.

## **Methods**

### **Participants and partnership design**

The Software Project (COMP90082) subject was created in 2020 to minimise gaps between academia and industry in the Master of Information Technology (MIT) courses. This subject gives students experience in analysing, designing, implementing, managing, and delivering software projects related to their stream of IT. Students work in teams of five to conceive, analyse, design, implement, test, and maintain a software product for a real-world industry partner. In this sense, this subject seemed like the perfect fit for everyone; the Faculty of Education would benefit from skilled software engineers to develop their software solution without costs and CIS students would have authentic software development experience. In March 2023, a team of five students was allocated to collaborate with educational specialists from the Faculty of Education (industry partners) in the design and development of UOMRecruitED. UOMRecruitED is an online software that allows students from the Faculty of Education and schools in the state of Victoria to create, manage profiles, and connect. The main goal of this platform is to match schools' needs with potential student candidates for those roles. Schools can make use of advanced search to identify and contact students from the FoE with the aim of offering employment. As part of the established partnership, students worked under the supervision of a CIS university staff member with industry experience and organised fortnightly meetings with their industry partner (to validate software requirements) for fourteen weeks. Furthermore, the education specialists offered a supportive, psychologically safe learning environment where instruction, feedback and communication were framed in a positive and growth-oriented manner. The inclusion of education specialists and the framing of the sessions as both learning, and development opportunities offers opportunities for further refinement to the program's intentions and consideration for orienting Industry partners in their role as educators may extend the benefits of these type of collaborations.

### **Design and development of UOMRecruitED**

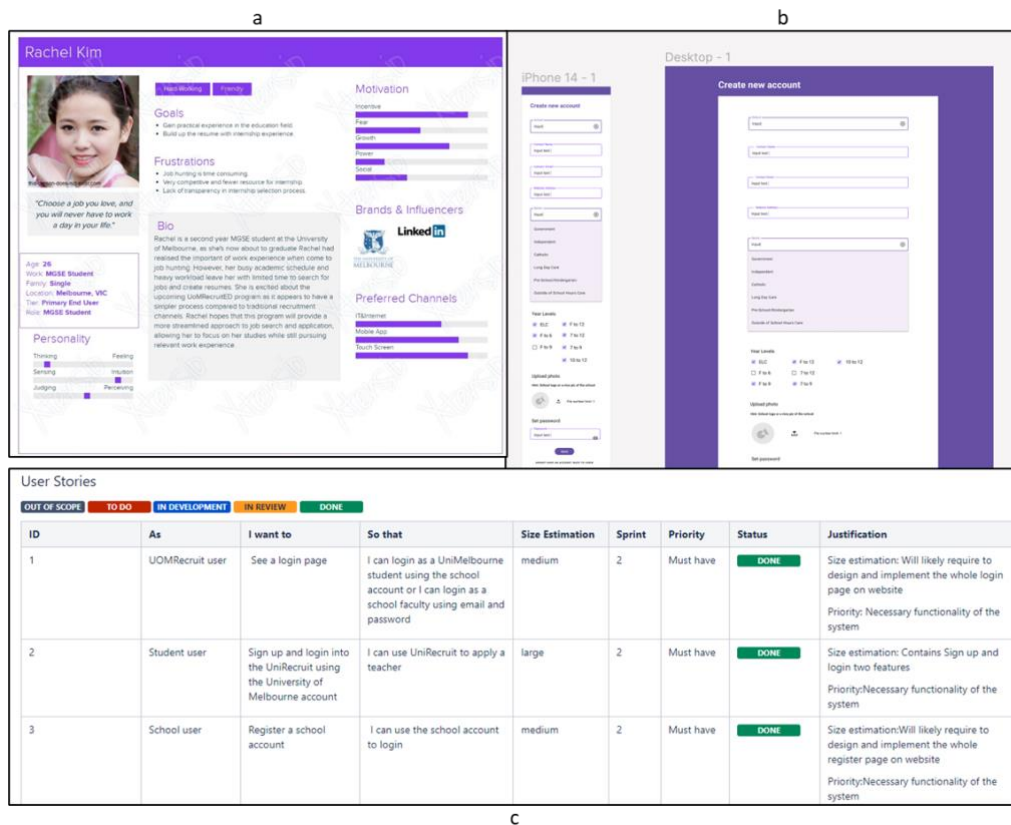
Agile methodology was adopted as part of the development of this partnership and software as it is well-suited for improving communication between software engineers and industry partners. Agile is an iterative and flexible approach to software development that emphasizes collaboration, adaptability, and customer satisfaction. This methodology facilitates better communication between stakeholders through frequent engagement, use of user stories and plain (non-technical) language, iterative development, prioritization of features and flexibility of changes, feedback loops, collaborative decision-making and others.

The importance of a learning experience where more than technical knowledge is part of the process was a key aspect of our design (Lescano & Yamao, 2022). Integrating an agile methodology framework, combined with the pedagogical expertise and orientation of the Faculty of Education as industry partners, created a safe, inclusive learning environment that resulted achieving the project's technical goals, and supporting the development of the essential non-technical skills of the students. The students led the project of UOMRecruitED through four sprints, arranging meetings, communicating updates, and requesting clarification from the industry partners at each step.

**Sprint 1: Design**

In the first four weeks of the subject, students worked on the design of the software. Students elicited, elaborated, negotiated, and validated software requirements with educational specialists from the Faculty of Education. In the design sprint, students generated personas, user stories, scenarios of use and high-fidelity digital prototypes of the software-to-be-developed (Figure 1). These resources were validated with industry partners through continuous collaboration. Partners involved in this project invited students to co-create and co-design the partnership platform with them. The scope of the project and its technologies were decided by the people involved in this collaboration, not by the subject coordinator. This helped the development of professional skills among students. The industry partners noted that the team was tentative and overly polite. Sensitivity to language competencies as well as cultural expectations guided their early interactions. The industry partners kept the focus primary on the work with some encouragement to the team to include their own thinking and experience as students. By the end of week 4, UOMRecruitED was fully designed, prototyped, and validated. The initial version of the software supports three main stakeholders creating accounts, managing profiles, and others (as shown in Table 1):

- (i) schools: create and manage school’s profile, create job opportunities, search for, favourite, and contact students (teacher candidates) (Figure 2)
- (ii) students: manage student’s profile and browse schools
- (iii) admins: manage schools and students on the software. Students cannot contact schools on this version of the platform.



**Figure 1. Example of artifacts produced in Sprint 1: a) persona, b) high-fidelity prototype, c) user stories.**

**Table 1. Partnership platform features created to stakeholders.**

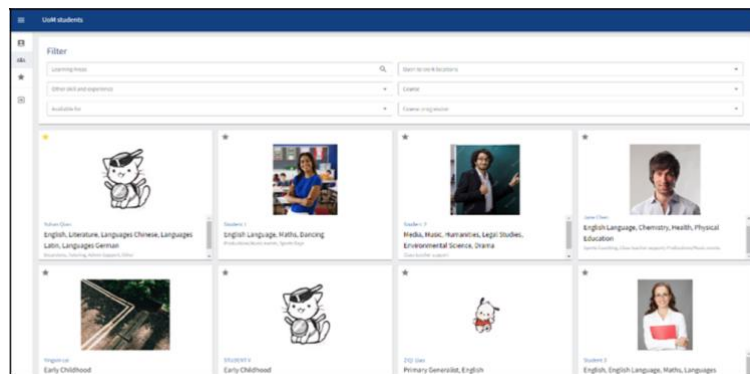
School	Student	Admin
Available Features		
Create School Account	Create Student Account	Dashboard page (delete and block schools and students' accounts)
Manage School Profile	Manage Student Profile	
Search for Students	Browse Schools	
Create Job Opportunities		
Favourite Students		
Contact Students		

### *Sprint 2 and Sprint 3: Development*

After the design of the software, students organised two development sprints (Sprint 2 and Sprint 3), which were mainly focused on the implementation, testing and deployment of the software solution. At the start of each development sprint, students had planning sessions with industry partners to agree on requirements that should be developed in those sprints. At the end of each development sprint, students had reviewing sessions with industry partners to confirm what features (or tasks) were completely developed and integrated in the software. During these development sprints, there were a range of between meeting interactions along with the regular meetings. The use of agile methodology, where the intention is on 'integrate and test' (Sankhe et al., 2022), had begun to influence the willingness of the student development team to trial the industry partner's requirements, freeing them from the need to appear perfect or simply responsive. Deliberate interactions from the industry partner team encouraged the student team to own their technological expertise, while also building trust and safety in the working relationship. The industry partners sought to be responsive and also clearly communicated where their expertise and ideation started and finished, furthering the reciprocity in the working relationship. By the end of week 11, the initial version of the partnership platform (v1.0) with core functionalities (prioritised by industry partners) was fully developed, tested, and deployed on Amazon AWS server.

### *Sprint 4: Project handover*

Lastly, between teaching weeks 12 and 14, students worked on bugfixes and improvements, and organised the official release of the software. A detailed technical report of over 140 pages was created and handed over to industry partners so the project can be extended in the future. The platform is ready to start its trials from July.



**Figure 2. UOMRecruitED v1.0**

## **Evaluation of partnership between the faculties**

Education specialists from the Faculty of Education (acting as industry partners) and lecturers from the Software Project subject in the CIS organised two one-hour meetings to discuss and reflect together on the outcomes of the partnership, considering the use of agile methodology, quality of final developed software solution, project handover, and impact of the partnership for students. They found the design and development process of the partnership software to be clear, responsive, and highly effective. Through the deliberate and intentional creation of a safe learning space by the Faculty of Education partners, students were observed becoming more relaxed, open to offering suggestions and improvements and sharing new ideas and options as the project progressed. The contrast from the start and end of the program was significant for all participants and illustrated in the students' final presentation where their confidence and pride in their work was demonstrated as they insisted on presenting and spoke to their learning and their success. The benefit of collaborating with colleagues and graduate students from different parts of the same university facilitated broader concept thinking and the expansion of the project from one faculty to many. Following an agile methodology for collaboration enabled the creation of a safe learning space for the student development team. The observations recorded by the industry partners, and their deliberate approach to creating a learning environment, is worth further consideration and investigation. Is it that the bridge between study and the workplace is enhanced when both industry partners and students engage in the learning as much as the project requirements. Being aware of the learning objectives of the student team meant the education specialists could contribute to the student team's growth, utilising their knowledge of pedagogy and project-based learning to create optimal learning conditions for the regular interactions. This openness meant that the student team shifted from being highly respectful and cautious, to seeing themselves as equal partners in the project, able to bring their expertise and creative understanding to the design and development process.

## Conclusions and next steps

Learning partnerships within universities that have a focus on building students' communication and social skills can be highly successful collaborations. Placing the emphasis on the learning journey of students, as much as the final product outcome, shifts the lens from achievement to growth which is more aligned to contemporary assessment approaches. Engaging across faculties also enables a deeper appreciation of the diverse expertise across the university, building collegial connections which further advance knowledge and research generation. With regards to this collaboration, what began as a small faculty focused project, ended with extensive enterprise modelling that the resultant prototype will support funding applications for further development and expansion. The importance of this project in addressing the initial complex problem cannot be understated. As an Initial Teacher Education provider, there is the capacity and perhaps moral imperative to apply the research and knowledge generation that is foundational to universities, in the pursuit of supporting and solving problems for schools and other learning centres. The early stakeholder research indicates high levels of enthusiasm for the partnership platform. Through the use of an agile methodology, further options were identified that have the potential to address issues around teacher shortage and other limits to school resourcing. Data collection from early trials will enable the identification of trends around career choices, employment, and retention as well as how access to a large student population builds engagement with external partners. Research into the impact of the partnership platform on easing staffing pressures will also illustrate the impact of the project. Future development indicates a significantly broader scope is possible, one that could lead to positive changes in the way stakeholders, internal and external, connect, collaborate, and grow learning partnerships.

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