

# Case Study

## Engaging Engineering: Introducing eportfolios into a first year Engineering course

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### The background context

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This case study is located in the School of Aerospace, Mechanical and Manufacturing Engineering at RMIT University. RMIT University is a large, vocationally orientated, multi-campus, dual sector university comprising both Technical and Further Education (TAFE) and Higher Education (HEd) sectors. The Engineering faculty at RMIT consists of four schools:

- Aerospace, Mechanical and Manufacturing Engineering (SAMME)
- Civil, Environmental and Chemical Engineering (SCECE)
- Electrical and Computer Engineering (SECE)
- Engineering TAFE.

This case study is based upon work being undertaken across the three HEd schools, specifically to introduce eportfolios into Engineering at a program level. In 2009, eportfolios were introduced into fourth year Aerospace. All Final Year Thesis Projects had to be submitted in PebblePad, and students were also required to keep a blog across their project. In SCECE, students entering fourth year had to complete a profile in PebblePad for their Vacation Employment course, a mandatory, non-credit bearing subject. Students complete the equivalent of 12 weeks full time work experience in which they need to evidence Engineers Australia's Stage One, Professional Competencies in order to qualify for professional accreditation. While a

review of these pilot projects was generally favourable, it was found that students did not like 'new' assessment practices being introduced in final year.



The general success of these eportfolio pilot projects resulted in discussions across the three HEd Engineering schools as to how they could improve their programs, develop reflective practices in Engineering students, satisfy program accreditation standards with Engineers Australia (EA), and provide students with opportunities and mechanisms to evidence EA's graduate attributes. Thus, the decision was made that eportfolios would be introduced into all Engineering programs across the three schools starting in first year in the core problem based learning course, Professional Practice 1, and specifi-

## The challenge

The introduction of eportfolios into a core course in first year is the first step in embedding eportfolios across a program. The challenges are many, but supporting both the student and staff experience is integral to the successful use of PebblePad in this course and indeed as the starting point for the program. It was therefore felt that introducing PebblePad at the beginning of the course would make it purposeful for students and position eportfolios as both a personal reflective space and one in which students can evidence their learning and develop their professional skills and graduate attributes.

cally related to the Engineers Without Borders (EWB) challenge project. This is the first stage of introducing eportfolios across the program; in 2011, eportfolio use will be extended into second year; then 2012 into third year, and finally fourth year. Therefore by graduation, students will have developed their eportfolios across their program and use this to evidence their learning, skills and professional competencies.

This particular case study looks at the introduction of eportfolios into Professional Practice 1 and the EWB challenge project in SAMME. This is a large student cohort, consisting of approximately 350 students, many of whom are school leavers and are commencing at university, facing all the usual transition issues accompanying the first year experience.

One of the concerns for SAMME was student transition and supporting the first year experience. Previously there was no formal school orientation process, relying on the general university orientation program. Other issues were lack of opportunities for student engagement in reflective practice and building awareness of graduate attributes in the curriculum, as well innovative ways to assess them.



## The approach

*Professional Practice 1 is a multidisciplinary, first year core course that introduces students to problem based learning and the EWB challenge project. The course is also a starting point for exploring and developing EA's graduate attributes. The course runs for 12 weeks and in SAMME it is delivered in first semester.*

The course co-ordinator was especially chosen and, in conjunction with the school's Director of Learning and Teaching, a hand-picked tutor group of seven people was selected.

The importance of the teaching team was acknowledged as pivotal to the successful introduction of PebblePad in the course, and thus the program, as this required a fundamental change in assessment practices.

This issue was clearly demonstrated in 2009 in the Final Year Thesis Project pilot, where there was some resistance by teaching team members, especially older staff, to adopt new assessment practices with the introduction of PebblePad in a traditional thesis course.



The first change of practice was to trial a new orientation program. SAMME developed a two day, school-based, orientation program in conjunction with the university wide program that included site visits to other campuses, and included an induction to PebblePad as an organised orientation activity. Secondly, due to the limitations of the traditional lecture and tutorial system in providing insights into large-class student cohorts, it was decided to use the form builder in PebblePad to develop an orientation form for the Professional Practice 1 students. Students were asked a range of questions covering areas such as their interests, their life goals, motivations for wanting to study in their chosen field, what qualities they think a profes-

sional in their chosen field needs to have and how they will develop these, what they were looking forward to at university, and their understanding of sustainability.

Two concurrent PebblePad induction sessions were held in computer labs as part of the orientation program, although not all students had access to a computer because of the large student cohort.

“ There were specific induction materials written to support students to log into PebblePad and access the orientation form. ”

The form was set to automatically publish responses to the gateway. This was a hurdle task: students were given approximately 2 weeks to complete the form. Any student who successfully submitted the orientation form into the Professional Practice 1 gateway received 5%. Additionally, there was a staff induction session so the teaching team knew how to use PebblePad and the various functions, e.g. forms, blogs, gateways etc. that would be used.

The Professional Practice course has used PebblePad across a range of assessment tasks. Students had to complete a Myer Briggs personality test and write a response/reflection about their personality type. They had to write an action plan using the Action Plan wizard to identify a professional practice skill they wished to develop based upon their Myer Briggs profile. Tutors gave feedback on both of these, and students were then required to write a weekly blog entry reflecting upon how they were progressing against their action plan, their general skills development, and how they found working in teams in the EWB challenge project. All of these assessment tasks are directly related to EA's graduate attributes and are firmly embedded in PebblePad.

## The issues

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There were no institutional barriers in this particular case study as this had the support of the Head of School, the Associate Pro Vice Chancellor (T&L) in the college, and the directors of Learning & Teaching within the schools. The support of the key stakeholders has been very important. However, this is just one of three Professional Practice courses, and this has been successful due in part to the hand-picked teaching team and the willingness of the co-ordinator to embed PebblePad into the curriculum. This will not be the case in one of the other schools.



## The result

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*The results so far are anecdotal, as the official Course Experience Survey (CES) has not yet been conducted. The CES will take place in week 11. This has been a deliberate decision to ensure that students have had a chance to adapt to university life, problem based learning and teaching practices, and working in multidisciplinary project teams.*

There will be a question directly related to PebblePad in the survey. However, the absence of any comments around PebblePad in the staff and student consultative committee meetings has been seen positively as students see PebblePad as the 'status quo', unlike in the fourth year Final Year Thesis Project meetings.

The results from the teaching team have been very positive.

“ They have been able to actively engage with students in ways that have not been possible before and have been able to give students targeted and regular feedback.”

The use of the orientation form gave the teaching staff great insights into their students, their motivations and how they were settling into university life. Additionally, they have seen a definite improvement in student reflective practices and their conceptualisation and evidencing of professional skills. As a result, the PebblePad question in the CES is directly related to the development of professional skills. It will ask: I like the way that PebblePad can help me develop and demonstrate my professional skills.

## The learning

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*The use of an orientation form allowed the teaching staff to gain good insights into their student cohort, to monitor student engagement and thus identify potential transition and first year experience issues. Students will generally adapt to assessment regimes (because they have to). However, this is not always the case with teaching team members. It is important to have good teaching team members in any change process.*

## In brief

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- The earlier an eportfolio is introduced into a program, the better the student response will be.
- If possible, eportfolios are best located at a program level to allow students to connect disparate courses into a holistic program and professional career direction.
- ePortfolios need to be embedded in the curriculum, purposively used within a context and be a meaningful experience for students.
- Capability development of the teaching teams is important, along with ongoing support.

## Acknowledgements

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Case study by Meaghan Botterill  
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