

# Engaging students in a wide-scale educational technology implementation: Investigating student attitudes

**Chris Campbell**  
Griffith University  
Australia

**Megan Duffy**  
Queensland University of Technology  
Australia

University-wide implementations of various technology teaching tools have been occurring for many years. Often staff are trained in using the tool and students are thus required to use it in various ways in their courses and for assessment purposes. This paper outlines the implementation of a university-wide ePortfolio platform, PebblePad, and investigates student attitudes one year after its introduction. Although students are still getting used to the platform, they are learning to accept the tool and are using it in various ways in their courses to support their learning. Results also show numerous ways students can get support to use the platform and the types of assistance provided. It is hoped students will accept PebblePad in the future, learn to be less critical and that deep learning can continue to be supported. In conclusion, PebblePad is a wide ranging ePortfolio system that can, when used well, support student learning in a large variety of ways.

Keywords: ePortfolio; attitudes; technology implementation; adoption; feedback; PebblePad

## Introduction

In the past ten years it has not been uncommon for universities to implement an ePortfolio system across the institution (Hains-Wesson, Wakeling, & Aldred, 2014; Lambert & Corrin, 2007; Slade, Murfin, & Trahar, 2017). It is also noted that Faculty and program adoption is also common (Parange, 2017; Perlman, Ross, Christner, & Lypson, 2011) as a different approach. Griffith University is a large Queensland university with 47,260 students across five campuses (Griffith University, 2017) with an implementation that involved students and staff in courses and programs from all four Academic Groups across the university. The implementation, using the software platform PebblePad, has been reported previously (Blair, Campbell & Duffy, 2017; Campbell, Bourke, Trahar & Nisova, 2017; Campbell, 2019) and involved using a multi-pronged implementation approach through an Innovators Program (Blair, Campbell & Duffy, 2017) that involved academics implementing the ePortfolio system into their courses and potentially across programs. Over 100 academic innovators participated in the first year of implementation which suggests the program was successful as it was the largest implementation of its type at the university. In its second year, training through a variety of ways, such as central workshops as well as more specific workshops for groups of academics, continued to encourage staff to use PebblePad in meaningful ways in their teaching to promote active learning (Campbell, 2019).

This paper thus reports on the student attitudes in using PebblePad during the second year of implementation, which means many students were exposed to it in the first year of implementation and were also using it in a variety of ways in the second year. PebblePad is a unique platform that is more than just an ePortfolio system as it that allows students to gain deeper and more authentic learning than previously with other online tools. The tool can be applied to a wide range of learning contexts and it can support both individual learning activities and group learning activities. It also has capability to support assessment through the submission of work using a system called ATLAS (Pebble Learning, 2018). The overall implementation was very much tied to employability and evidencing student successes while at university (Author., 2017).

## Literature Review

In universities today it is becoming increasingly important to provide students with rich, hands on and authentic learning experiences because students “learn by experiences, doing and creating, demonstrating newly acquired skills in more concrete and creative ways” (Adams Becker, Cummins, Davis, Freeman, Hall Giesinger, & Ananthanarayanan, 2017). It is also recognised that students are increasingly active contributors to their learning (Adams Becker et al., 2017) and as such platforms such as PebblePad are increasingly important in contributing to the student learning experience. Studies suggest that students who are exposed to active learning report greater retention of course material for both the topics presented as well as the whole course material (Bennett, Agostinho, & Lockyer, 2017; Miller, McNear, & Metz, 2013; Smith & Cardaciotto, 2011). Research suggests that in order for teachers to use new technologies in their teaching it is more likely to occur if the tools can be connected in some way to their existing practice (Bennett et al., 2017).

## Fostering student learning

One definition of ePortfolios is that it is a digitised collection of artefacts that can include various items such as demonstrations, resources, and accomplishments that represent either an individual, or a group, or even an institution (Lorenzo & Ittelson, 2005). This can be beneficial for student assessment tasks that require various types of artefacts. One study based at Griffith University with accounting students suggests students showed positive attitudes towards ePortfolios with regards to being able to critically reflect and engage in their learning (Bodle, Malin, & Wynhoven, 2017).

By using ePortfolios, such as PebblePad, students are able critically reflect “on one's learning and for compiling and demonstrating evidence of learning and skill development” (Krause, 2006, p. 1). This also allows students to make connections through their learning experiences which can then enable the transfer of knowledge and skills to other contexts (Penny Light, Chen, & Ittelson, 2012) in the future. Thus, in this instance students are able to better able to apply their knowledge to their learning situations in the future. The tool also allows students to go back to think about what they have learnt, thus helping with their memory as well. One study to assist with critical reflection using ePortfolios reported positive results when using various classroom strategies to help students (Jenson, 2011). This included innovative use of in-class questioning to allow students to reflect on why they were learning this and how this will assist their studies.

From the literature review the following research questions were developed:

1. In what ways are students using PebblePad in their courses?
2. What are student attitudes when using PebblePad in their courses?

## Methodology

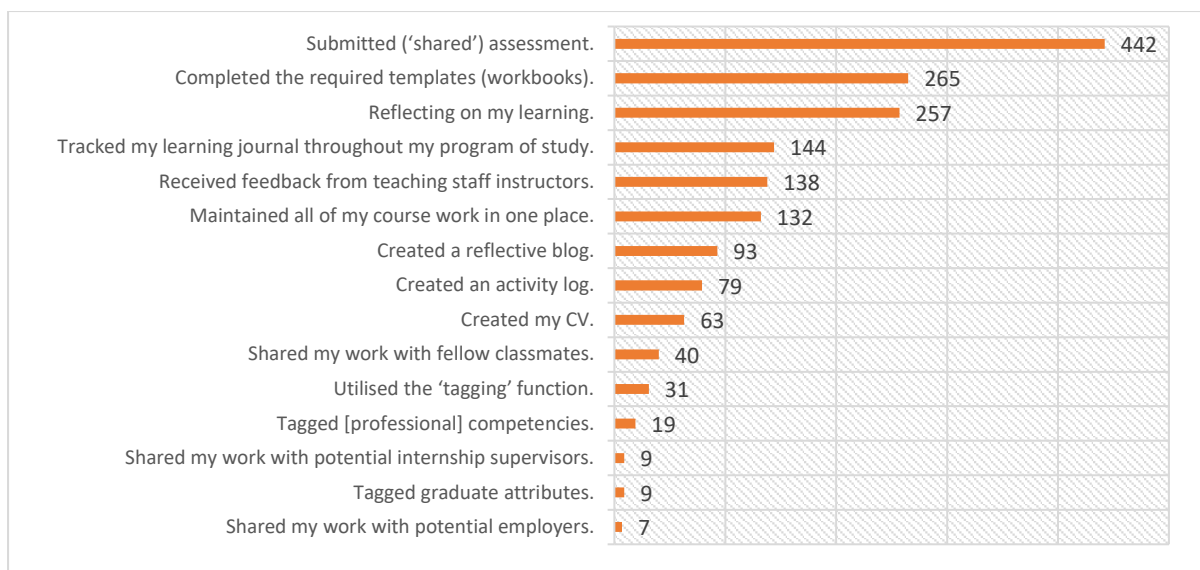
After gaining ethics approval for the project via a university-wide process, all students using PebblePad were emailed an invitation to complete a survey with 12,634 students being emailed towards the end of Trimester 1, 2018. With a six percent participation rate, 747 students participated in the survey. It is important to note that not all students completed every question and as such the response rate for individual questions varied. It is also worth noting that with such a low response rate it may be that students who completed the survey felt strongly in either the positive or negative and completed the survey in order to strongly voice their opinion and it may not be the opinion of the majority of students. Students who completed the survey were predominately female with a 68.8% response rate with a small number of students who identified as ‘other’ 1.2% (n=9). The rest of the respondents were male with 30% (n=211). There were 45% (n=320) students who completed the survey who were less than 20 years old with 24% (n=168) who were 21-24. Less than 10% of students were in each of the older age categories with 5.25% (n=37) who were 50+ completing the survey.

Survey questions included demographic data including which courses PebblePad was used in as well as Likert scales on beliefs about using this platform in their learning. Importantly, the students were asked for the ways they used it plus who they asked for assistance in using it. Students were asked questions about self-reflection and employability as well as open ended questions such as what they found worked well and how it could be improved. The two open ended questions were coded for emerging themes using coding software with 450 responses with positive and valid comments. For the final question, on what could have been improved, there were 406 responses that were valid improvement comments.

## Results

Students were asked in what course(s) they were using PebblePad. Students across all four academic groups (n=709) report using PebblePad, which shows the implementation is widespread. Usage includes most of the Schools in the academic groups and across many of the programs across the university, so the data is not just from isolated courses or disciplines. In June 2018, there were 20,145 unique active users and as such it is well embedded across the university which has 47,260 students (Griffith University, 2017) and almost 5,000 staff.

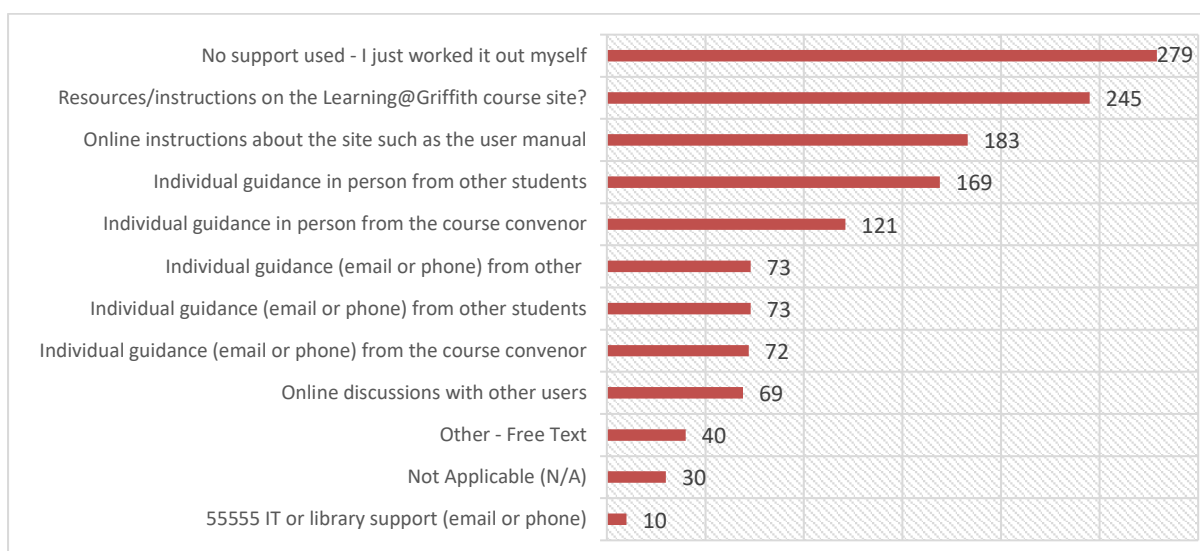
Students were asked how they used PebblePad and were given a large checklist which they could check as little or as many items as they wished. Many students (n=442) used it to submit a ‘shared’ assessment, complete a required template (n=265) or reflect on their learning (n=257). Other students used it as a learning journal (n=144) and to receive feedback from teaching staff (n=138). Some identified uses were not used much by students at all, including sharing work with potential employers (n=7). Figure 1 gives a breakdown of identified uses.



**Figure 1: Ways of using PebblePad (students were able to check more than one use)**

Results show that the majority of student use of the platform links directly to their course activities. There were also a small number of students who used this platform to engage with opportunities for their career development, professional networking and promotion, outside of the learning requirements including tagging of graduate attributes and professional competencies as well as sharing with potential supervisors and employers. This indicates that students' attitudes towards the platform was that it was useful beyond their course requirements.

To get familiar with the tool, students report predominately working it out themselves (n=279), as well as utilizing the self-help materials provided online from the university in their Blackboard course site (n=245), while other students report asking their peers (n=169). Figure 2 shows the ways students report gaining assistance in using PebblePad with 647 students completing the question, with some selecting more than one as there are 1364 responses. Feedback from the survey also indicated that some tutors or instructors provided time to learn the tool in class and responded to queries via email. Few students indicated that they took advantage of the central IT and Library support teams.



**Figure 2: Ways of gaining support when learning to use PebblePad (could select multiple responses).**

Students were given an opportunity to comment on what they found worked well with PebblePad in their courses with there being 450 comments overall. With regards to ‘assessment’ there were 70 comments. One student commented that using PebblePad as a tool *“making a foundation of my knowledge to help in assignments”* was beneficial, while another reported *“I found using PebblePad helped to connect lectures with tutorials and then remind myself of the learning for assessments”*. Another student commented on the technical advantages of using PebblePad by stating *“The fact that you could submit something for assessment but still work on it and it would get updated on the other end so it saved the fact of having to submit a file into a submission folder taking up time and avoiding technical troubles”*. There were 207 positive comments on ‘ease of use’. With so many positive comments it suggests that some students’ attitudes were quite positive about using the platform. While some students commented on their ePortfolio specifically about the layout and ease of using it visually with one student suggesting *“I think being able to customise the layout of your PebblePad and being able to easily include pictures and videos and links to support what I was saying made PebblePad a very useful tool for learning and presenting”*.

Another student commented on the functionality of the ePortfolio in a positive way *“I like being able to easily switch between workbooks, being able to preview my work and reminders to save every 10-20 mins”*. There were 31 comments about the ‘templates’ with one student commenting *“Was useful in completing the workbooks and having everything together in one place. Can look back on work and find old resources”*. Comments such as these suggest that students were engaging with the platform to make the most of the available features. Student comments about investing their time in making PebblePad work also provided valuable feedback to the system admin and vendor via their comments.

However, not all students report liking using the platform in their courses with some students commenting on what could have been improved. These include areas such as editing functions with 116 comments, navigation (n=110 comments), the look and feel and the structure (n=91 comments), training and support (n=61 comments), learning design (n=34 comments) and submission (n=19 comments) amongst others. One student commented on the navigation when s/he said *“I found some things slightly confusing in terms of accessing different functions, however I think that might just been because I was using it in a hurry and for the first time too. So, when I went back to it, I found it very accessible and functional”*, while another student suggested simplifying menus into *“Workbooks and Portfolios without all the clutter of every single document you have added. Having the marking rubric imbedded into each workbook page. Make things like finding feedback on assignments on the actual workbook page”*. Some suggested areas of improvement are around functionality and editing including this comment *“The text boxes glitch and make it impossible to click into a paragraph you have already written without overwriting your work”*. Although there were some negative comments, as reported above, not all students reported negatively about their experiences and some students found it very useful to complete their work in PebblePad.

## Discussion and Conclusion

Although PebblePad is used as an ePortfolio system and more across the university in all Academic Groups and most Schools, the students do not always appear to like the platform, with some being critical of it in its first years of implementation. As the platform developers are continuing to work to improve the functionality of PebblePad, and through continued use it is hoped that students will accept PebblePad, much like Blackboard and other learning management systems that students are required to use. Based on the comments from students, they need a clear purpose when using a platform like PebblePad as it has so many various uses and features. Continuing to promote the benefits of an ePortfolio platform such as PebblePad will hopefully allow students to discover its benefits throughout their programs and beyond. This may help to change and improve student attitudes to using PebblePad in the future.

Results also suggest students need clear guidance on how, when and why to use PebblePad to give them confidence in using the tool for their course and/or tasks. Contextual orientation or introduction sessions, written instructions and instructional videos were noted as positive. It is recommended academic staff continue to use these support materials, both created and supplied. It may also be effective if the students are provided opportunities and structure to support each other in their use of PebblePad. As they are likely to ‘figure it out themselves’ or with their peers, it would be beneficial to tap into this as an opportunity for them to develop skills and confidence.

Teaching staff can perhaps assist students further by structuring the workbooks and activities in PebblePad so that they are well thought out and provide relevant support material easily accessible to students. Based on the negative comments in the results, it may not have been the platform per se that was the negative experience, but large

convoluted workbooks or lack of instructions and purpose that frustrated the students when using PebblePad in their courses.

As shown above a large number of students across the university use PebblePad to enhance their learning. Students also use PebblePad in a large variety of ways to support their learning such as submitted assessment tasks, completing scaffolded work via templates, and reflecting on learning. It is hoped to continue this research in the future to gain further insights into student attitudes of the platform and how they are changing.

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