Giving students an eDGE: Focusing on ePortfolios for graduate employability

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Abstract

Universities are placing increased attention on providing students with ePortfolios and online teaching platforms to enhance learning and employability. This paper reports on a study which aimed to investigate the views of dietetics students on the usefulness of PebblePad as a learning platform and ePortfolio tool for evidencing graduate competency and enhancing employability. This research was conducted within a multi-component design-based research framework. PebblePad was introduced to the Griffith University Bachelor of Nutrition and Dietetics four-year degree in 2016 as part of the eDGE project (ePortfolios for Dietetics Graduate Employability). Students enrolled in 1st and 3rd year courses utilising PebblePad in 2016 and 2017 were invited to complete an online survey at the conclusion of each course. Surveys were completed by 116 students (2016 n=50; 2017 n=66). Students perceived that PebblePad could impact on their employability through demonstrating their learning as well as assisting their understanding and competency development as a professional. This was more evident in 3rd year students than 1st year. The aspects of PebblePad perceived as most beneficial for employability were the ability to: 1) collate experiences and assessment; 2) evidence dietetics competencies via 'tagging'; and 3) facilitate reflection. The least beneficial aspects were: 1) usability and navigation of PebblePad; 2) lack of clarity around using PebblePad to evidence employability; and 3) belief that required reflections were excessive. ePortfolios and learning platforms such as PebblePad are perceived by students to be useful for evidencing employability. Potential improvements in assessment design could further enhance their use.

Introduction

The Higher Education Academy states that to enhance graduate success, it is important that university degrees are designed to actively assist students to 'develop a range of knowledge, skills, behaviours, attributes and attitudes which will enable them to be successful not just in employment but in life' (Cole & Tibby, 2013, p. 5). Graduates able to demonstrate their competence and showcase their unique skills to potential employers may have an advantage in the current competitive employment market (Health Workforce Australia, 2014; Job Outlook, 2012). Employability as defined by the Higher Education Academy is *a set of achievements – skills, understandings and personal attributes – that*

makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy (Yorke, 2006, p. 8). The Employability Framework used at Griffith University aims to combine scholarly learning, work integrated learning and professional preparation to achieve graduate success and employability (Griffith University Careers and Employment Service, 2015). The framework aims for students to use their academic work to build career awareness, confidence, and their professional identity to enhance student success and satisfaction when transitioning into the workplace.

Context

With increasing investment in technology, electronic portfolios (ePortfolios) are being introduced to learning and teaching at universities (Pearson et al., 2018; Porter et al., 2015) with an emphasis on strong teaching pedagogy (Pearson et al., 2018) and student-centred active learning (Clark & Eynon, 2009). ePortfolios allow the online collation of work and are particularly suited to evidencing skills developed throughout a degree (Woodley & Sims, 2011). There is evidence that ePortfolios improve student understanding of curricula (Joint Information Systems Committee, 2008) and promote reflective practice (Clark & Eynon, 2009; Joint Information Systems Committee, 2008; Kimball, 2005; Pearson et al., 2018). Students who use ePortfolios have been found to gain confidence and show enhanced self-worth (Joint Information Systems Committee, 2008). ePortfolios present the opportunity to encourage an attitude of 'lifelong learning' amongst students to guide continued professional development (CPD) after graduation (Green et al., 2014; Joint Information Systems Committee, 2008; Pearson et al., 2018). Another benefit of ePortfolios is their use for graduate recruitment. A systematic scoping review of the views of employers, industry representatives and university educators regarding the use of ePortfolios in graduate recruitment showed a variety of benefits, including the ability to showcase key skills and work (Mitchell et al., 2021). To improve employability, it was recommended that ePortfolios contain samples of professional work, reflections, videos and photos, in addition to typical résumé content, as well as a clear and concise structure (Mitchell et al., 2021). There is thus substantial interest in using ePortfolios in learning, career development and transition into employment (Hallam & Creagh, 2010).

Several ePortfolio platforms are commonly used in higher education, including Mahara, PebblePad and Google Sites. At this institution, PebblePad was adopted as the ePortfolio of choice. PebblePad is an ePortfolio and learning platform that allows students to manage their own learning through the documentation, collation and assessment of learning activities (PebblePad Learning, 2018). Within the PebblePad environment, students can customise ePortfolios, but they can also utilise developed teaching resources such as workbooks and templates. PebblePad has been evaluated for several student cohorts and purposes, including an assessment platform (Cordier et al., 2015; Welsh, 2012), to enhance the quality of learning environments (Le, 2012) and as an ePortfolio tool (Woodley & Sims, 2011). It has been used to communicate professional achievement and to record and store evidence of professional development (Hampe & Lewis, 2013) as well as to demonstrate employability (Brent, 2019; Tuffley & Brent, 2019). PebblePad has also been utilised to develop scaffolded critical reflection (Gregory & Johnston, 2019) and reflection through video creation (Korf & Campbell, 2019). Studies have explored how PebblePad can be effectively implemented at the institution level (Campbell, 2019; Campbell & Duffy, 2019; Trahar & Bourke, 2019), through investigating learning design (Allan et al., 2019) and for first year engineering design (Michael et al., 2019).

Dietetics education

Similar to other professions, dietetics in Australia relies on competency-based assessment, with students needing to demonstrate their ability to meet all of the National Competency Standards for Dietitians (Dietitians Australia, 2021) prior to graduation. Dietetics curriculum within universities is underpinned by the Competency Standards, with students developing competence throughout their degree. The Griffith University dietetics degree is structured around the relevant professional

competency standards which are embedded in a scaffolded way. ePortfolios have been shown to be useful for graduates to demonstrate competency (Bramley et al., 2020; Gaba, 2015) and to exhibit their skills to future employers (Hallam & Creagh, 2010; Vouchilas & George, 2016).

Within dietetics, ePortfolios have been evaluated regarding the provision of evidence for learning outcomes on placement in Australia and the United Kingdom (Brennan & Lennie, 2010; Palermo et al., 2015) and assessment on internship in the United States (Gaba, 2015). These studies show that ePortfolios may be useful in situations where students take responsibility for, and participate in their own assessment and learning, by setting goals and creating opportunities for structured self-learning, contributing to and promoting critical thinking (Palermo et al., 2015). Significantly, students who have had previous experience with ePortfolios have found them to be a useful platform for recording knowledge and facilitating communication throughout the degree and on professional placement (Palermo et al., 2015; Volders et al., 2010), and evidencing competence (Porter et al., 2016). More specifically, PebblePad has been evaluated in regards to nutrition student perceptions and the use of PebblePad digital workbooks (Burkhart & Craven, 2020) as well as Entrustable Professional Activities (EPAs) to support competency-based education (Bramley et al., 2020).

Reflection is a key skill that requires practice to improve learning and enhance performance, both while at university and after graduation. PebblePad provides a tool to scaffold reflection throughout a degree, allowing students to complete reflective templates and to collect, collate and reflect upon individual tasks (Dreisiebner et al., 2017; Korf & Campbell, 2019; Roberts, 2014). By allowing students to critically reflect *on one's learning and for compiling and demonstrating evidence of learning and skill development* (Krause, 2006, p. 1), students are able to make connections between their learning experiences which can then enable and potentially increase their transfer of knowledge and skills to other contexts (Penny Light et al., 2012). Thus, the use of ePortfolios, and in this instance, PebblePad, may be beneficial to student learning. While previous research has evaluated dietetics student use of ePortfolios, the impact of ePortfolios on dietetics graduate employability has not been explored.

ePortfolios for dietetic graduate employability (eDGE)

PebblePad was introduced within the Bachelor of Nutrition and Dietetics program at Griffith University in 2016 as part of the **e**Portfolios for **D**ietetics **G**raduate **E**mployability (eDGE) project. PebblePad was used to assess student learning within one 1st year and four 3rd year courses in the four-year degree Program that graduates credentialed dietitians. PebblePad was also used by students to collate and reflect on evidence of developing competence, to document career planning and CPD activities and to demonstrate graduate employability. A key benefit of many ePortfolio tools such as PebblePad is that the work of students can be collated in one place and used to demonstrate skills and abilities (PebblePad Learning, 2018). Consistent use of PebblePad to complete and submit assessments provided further benefit for collating assessments and using them as evidence of competency development. This was an important reason for choosing PebblePad within the Griffith Bachelor of Nutrition and Dietetics and was communicated to students by the academics. Setting learning goals and logging CPD hours is a key requirement for dietitians to maintain Accredited Practising Dietitian status. This key practice was included in the Bachelor of Nutrition and Dietetics from 1st year of the degree to develop skills they will need as graduates.

The portfolio elements of PebblePad were customised to allow students to develop their resume from 1st year of the Program and to identify and seek out activities that would strengthen their employability. PebblePad was fully embedded into courses through tutorial workbooks, reflective tasks, CPD logs, personal ePortfolio development, and assessment upload. Figure 1 shows an example of a PebblePad workbook, which includes navigation tabs across the top of the workbook linking to the different assessment items within the course.
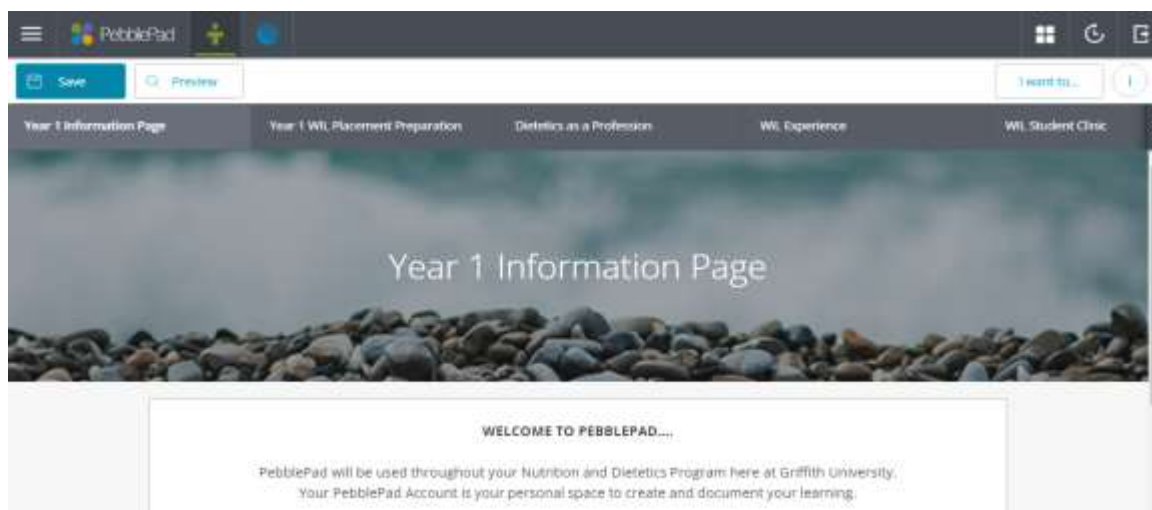
Figure 1: Example of PebblePad within 1st Year Bachelor of Nutrition and Dietetics

Figure 1: Example of PebblePad within 1st Year Bachelor of Nutrition and Dietetics

Some existing assessment items were redesigned to utilise the functionality of PebblePad, and some were purpose-developed for PebblePad (Pearson et al., 2018). Constructive alignment was used to improve the courses to optimise student learning, whereby learning outcomes, assessment tasks and learning activities were clearly outlined and linked (Biggs & Tang, 2011). Academic staff provided PebblePad training to each student cohort at the beginning of each teaching period, with ongoing support provided throughout the degree.

Aim and research questions

This study aimed to investigate dietetics students' views on the usefulness of PebblePad as a learning platform and ePortfolio tool for demonstrating competency and to enhance employability in order to make recommendations for improving practice. The research questions are:

1. What views are held by student dietitians of the usefulness of PebblePad as a tool for demonstrating competency and CPD and to enhance employability?

2. In what ways do student dietitians perceive that PebblePad can assist with demonstrating their employability?

Methods

Research design

A design-based research approach was used, incorporating evaluation and feedback from each teaching period to iteratively redesign assessment, resources and student training for each subsequent course (Akker et al., 2006; Edelson, 2002). This design-based research approach has been used to inform curriculum development within the Bachelor of Nutrition and Dietetics (Ross et al., 2017). This paper reports on data from successive cross-sectional surveys as part of a multi-component longitudinal study to evaluate and redesign the eDGE components first introduced into the Bachelor of Nutrition and Dietetics degree in 2016, including the PebblePad implementation, assessments, and resources. In 2017, Pebble Pad was implemented throughout Griffith University. Ethical clearance was obtained for the research (Institutional Ref No: 2016/772 and 2017/111). All participants provided informed consent prior to their inclusion in the study. Reporting of the study follows STROBE guidelines (Vandenbroucke et al., 2007). An overview of the design-based research

approach used in the implementation and evaluation of PebblePad within specified courses in the Bachelor of Nutrition and Dietetics is illustrated in Figure 2.
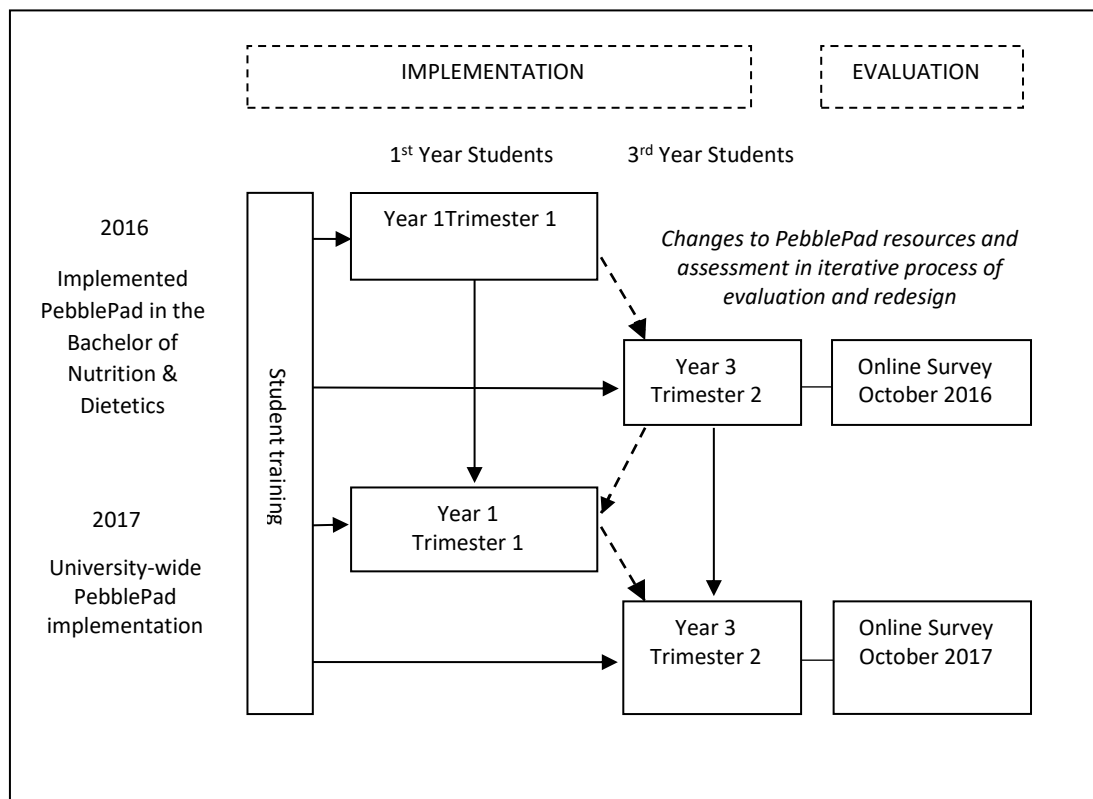

Figure 2: Design-Based Research Approach to the Implementation and Evaluation of PebblePad within Specified Courses in the Bachelor of Nutrition and Dietetics.

Research population

Bachelor of Nutrition and Dietetics students enrolled in the relevant 1st year (2016 n=63; 2017 n=80) and 3rd year courses (2016 n=61; 2017 n=50) were invited to participate via an email announcement using the course learning management site (Blackboard). In 2016 this occurred after course completion, while in 2017, the email was sent in the final weeks of the teaching period, prior to assessment grading.

Data collection

Mixed method online surveys that contained quantitative and qualitative items were conducted over multiple teaching periods in order to evaluate student satisfaction with PebblePad in courses within the Bachelor of Nutrition and Dietetics. These included a combination of categorical items (demographic data), Likert scale (agreement with attitudinal statements related to PebblePad and employability) and open-end items (to explore attitudes and experiences of PebblePad) (see Table 1 below). In 2016, a 38-item survey was made available via Survey Monkey and took 10-15 minutes to complete. Skip logic was applied so students only answered the items that were relevant to them based on responses given. Pilot testing of the survey was conducted by four Nutrition and Dietetics staff members and four Nutrition and Dietetics students, with feedback incorporated. With the University-wide implementation of PebblePad in 2017, a large-scale, Qualtrics online survey was implemented at the university level. This 23-item survey was adapted from the original survey and

broadened for use in a range of University programs. Thus, some of the 2017 items differed slightly from the 2016 items, however, the key elements were comparable, as shown in Table 1. The survey items presented in this paper addressed data related to demographics, use of PebblePad, impact of PebblePad on learning, and the effectiveness of PebblePad for assessment and employability.

Data analysis

Statistical analysis

Survey data obtained in Survey Monkey and Qualtrics were exported and statistically analysed in Microsoft Excel. The results were analysed through a series of descriptive and frequency comparisons. Mean and standard deviation (SD) were calculated for the level of agreement on the Likert scale data, where 1= strongly disagree and 5= strongly agree. After checking that the variables were normally distributed, Chi-squared and unpaired t-tests were conducted to evaluate differences between cohorts, with variance tested using Levene's test (Engineering Statistics Handbook, n.d). Statistical significance was set as $p<0.05$, suggesting strong evidence that the result is not random (McLeod, 2019).

Thematic analysis

Qualitative comments from open-ended items on the survey were analysed using thematic analysis (Rapley, 2011). The process summarised by Rapley was followed, including: 1) familiarising with the data; 2) generating initial codes; 3) searching for themes by collating similar codes; 4) reviewing themes; and 5) refining themes (Rapley, 2011). Quantitative and qualitative data were then triangulated to enhance the validity of the research.

Table 1: Survey Items for the Bachelor of Nutrition and Dietetics PebblePad Survey (2016) and University-wide Survey (2017)

Construct	2016 Survey Items (Bachelor of Nutrition and Dietetics specific)		2017 Survey Items (University-wide)	
Demographic data	Student number	7-digit code	Student number	Open-end
	Gender	Categorical	Gender	Categorical
	Age group	Categorical	Age group	Categorical
	Course enrolment	Yes/No	Program/ Course enrolment	Open-end
Assessment	Benefit of all assessment items submitted in PebblePad	Likert scale[a]		
Feedback on PebblePad	PebblePad elements that worked well	Open-end	PebblePad elements that worked well	Open-end
	Suggested improvements	Open-end	Suggested improvements	Open-end
Impact of PebblePad on Employability	Usefulness of PebblePad for employability	Likert scale[a]	Relevance of PebblePad for future career	Likert scale[a]
	PebblePad encouraged consolidation of important career planning items	Likert scale[a]	The ePortfolio helped focus on courses	Likert scale[a]
			PebblePad helped achieve learning objectives	Likert scale[a]
	Motivation to continue using PebblePad to evidence competency/ employability	Likert scale[a]		
	Impact of PebblePad on readiness to be a dietitian	Likert scale[a]	Impact on readiness to be a professional	Likert scale[a]
	Usefulness of collation of assessment items for employability	Likert scale[a]		

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Construct	2016 Survey Items (Bachelor of Nutrition and Dietetics specific)		2017 Survey Items (University-wide)	
[a]	Benefit of all assessment items submitted and marked through PebblePad for employability	Likert scale[a]	Plan to use PebblePad to demonstrate learning and skills	Likert scale[a]
	Use of PebblePad beneficial for enhancing employability	Yes/no/ unsure		
	Most beneficial aspects	Open-end		
	Least beneficial aspects	Open-end		
Additional use of PebblePad	Use of PebblePad outside course requirements	Yes/no	Use of PebblePad in other ways in the future	Likert scale[a]
	Use of PebblePad and why	Open-end	Use of PebblePad	Open-end
	Plan for continued use of Pebble Pad	Yes/no/ unsure		
	Plan to use PebblePad in other ways	Yes/no		
	How planned to use and why	Open-end	Other use for PebblePad	Open-end

[a] 1= strongly disagree; 2= disagree; 3 = neutral; 4 = agree; 5= strongly agree

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Results

Participants

The survey was completed by 98 students, a response rate of 41%. In 2016, 11 1st year students (18% response rate) and 39 3rd year students (64% response rate) completed the survey, with the majority being female (1st year = 91%; 3rd year = 92%). Just over a quarter of 1st year students were younger than 20 years of age (27%) and another 27% were 20-24 years, with the remaining 45% 25 years or older. The majority of 3rd year students were 20-24 years of age (77%; 25+ years=23%). In 2017, 28 1st year students (35% response rate) and 20 3rd year students (40% response rate) completed the survey. The demographic characteristics of 2017 students are presented in Table 2 along with relevant quantitative findings.

Perceived usefulness of PebblePad for enhancing employability

Students perceived that PebblePad could impact on their employability through supporting their learning as well as assisting their understanding and development as a professional. This was more evident in the 3rd year than the 1st year student data. In 2016, 56% of the 3rd year respondents agreed that PebblePad was beneficial for enhancing their employability as a dietitian (33% unsure; 10% disagreed), compared to only 18% of 1st year students (55% unsure; 27% disagreed, p=0.025). In 2016, the 3rd year students reported higher levels of agreement for most of the employability statements than 1st year students, although results did not reach statistical significance (data not shown). In 2017, 3rd year respondents rated the impact of PebblePad on employability significantly higher than the respondents in 1st year (p<0.01) (see Table 2).

Table 2: Bachelor of Nutrition and Dietetics Student Responses Regarding the use of PebblePad to Enhance Employability in 2017, 1st Year versus 3rd Year Responses

2017	1st year (n=28)		3rd year (n=20)	
	n	%	n	%
Gender				
Female	26	93	18	90
Male	2	7	2	10
Age				
<20 years	9	32	2	10
20-24	10	36	12	60
25+	9	33	6	30
	Mean[a]	SD	Mean[a]	SD
I understand the relevance of using PebblePad to support my learning.	2.82	1.04	4.15**	0.79
I understand the relevance of using PebblePad for my future career.	2.61	0.98	3.7*	1.14
The ePortfolio helped me to focus on my courses.	2.11	0.90	3.4**	1.11
PebblePad helped me achieve learning objectives	2.54	1.12	3.7*	1.10
The use of PebblePad has positively impacted my readiness towards being a professional.	2.50	0.94	3.85**	1.01

[a]Agreement scale: 1= strongly disagree; 2= disagree; 3 = neutral; 4 = agree; 5= strongly agree
Significantly different compared to 1st year: ** p<0.001; * p<0.01

In 2016, students were asked whether they thought 'It would be beneficial to have all assessment items within Nutrition & Dietetics courses submitted and marked through PebblePad'. While only 9% of 1st year and 26% of respondents agreed or strongly agreed with this statement, more than half of the students agreed or strongly agreed when the same question was asked with the addition of 'in order to better evidence my competency/ employability' (1st year: 55%; 3rd year: 54%).

The qualitative results for these cohorts are presented below, with exploration of the benefits and issues of using PebblePad providing further insight into the quantitative findings.

How PebblePad assists with evidencing employability

Responses to the open-ended item: 'What aspects of PebblePad did you find most beneficial for evidencing your employability?' fell into three categories, namely collation, tagging and reflection.

Collation

The students saw the benefits of collation as:

> …*being able to collate all your experiences and assessment all in one place* (Student 36, 3rd year, 2016).

> *I can simply open PebblePad and show a prospective employer the work that I have completed over the course of my degree (*Student 41, 3rd year, 2016.)

In particular, students commented on the benefit of using PebblePad for developing and recording their learning goals and CPD log. The activity log functionality of PebblePad made it possible for students to record their learning goals for the course and to keep a log of hours spent. Students could also reflect on and evidence specific activities within the activity log.

> *The CPD logbook worked well as it was an easy way to document/keep track of the activities and hours completed* (Student 59, 3rd year, T1 2017*).*

Students felt that PebblePad enhanced their employability by encouraging professional development activities that may not otherwise have been undertaken.

> *I felt it was extremely useful to do a CPD log as it encourages you to undertake volunteer work, increase knowledge and experience, as well as participate in mentoring* (Student 38, 3rd year, 2016).

However, not all students felt this way, with some reporting a lack of clarity about how PebblePad could be used to evidence employability and some unsure of whether employers would be interested, as evidenced in the following comments.

> *Not sure an employer would look at your PebblePad portfolio, if they even know what it is* (Student 32, 3rd year, 2016).

> *I'm not sure how an employer would use it as a reference for my employment. Do they access it themselves or would we have to print everything out/re-write it for them?* (Student 5, 1st year, 2016).

Tagging

The second benefit of PebblePad for evidencing employability was the tagging function, whereby keywords or phrases could be linked to items of work. In particular, tagging allowed the National Competency Standards for Dietitians (Dietitians Australia, 2021) to be identified to demonstrate competence for placement and future employers.

> *Having all the competency standards tagged so that when we graduate, they are all in the one place and it will be easy to be able to show how we meet certain competencies* (Student 22, 3rd year, 2016).

Reflection

The third benefit of PebblePad for evidencing employability was the way in which it was used to facilitate reflection and as a record of progress.

> *…reflection of learning and development as a student dietitian* (Student 2, 3rd year, 2016)*.*

> *easy to track progress'* (Student 14, 3rd year, 2016)*.*

> *In future, because I have written about each activity, I will be able to collate this all into my CV with the reflection to then look back and read to remember how it allowed me to improve as a student Dietitian* (Student 31, 3rd year, 2016).

Alternatively, some students felt that the amount of coursework reflection required to be documented within the multiple PebblePad workbooks and assessments was excessive. While documented reflections were seen as beneficial, the amount required was not seen as necessary to evidence employability.

> *The excessive reflection, an employer isn't going to read any of it. Enough to remind us of the experience would be enough* (Student 23, 3rd year, 2016).

Another limitation revealed in response to the question of 'What aspects of PebblePad did you find least beneficial for enhancing your employability?' related to PebblePad's useability. Students felt that the PebblePad layout was confusing, navigation was difficult as was locating their work.

> *I found PP overall not very user friendly* (Student 29, 3rd year, 2016).

> *The assets store looks really messy and confusing* (Student 36, 3rd year, 2016).

Discussion

This study is the first to show that students increasingly see the relevance of a portfolio to evidence competency and enhance employability as they progress through their degree. However, the study also highlights that to increase ePortfolio acceptability, adequate training and support are required, as well as realistic expectations of workload. This expands our understanding of how an ePortfolio tool such as PebblePad could impact on student employability through supporting their learning at University.

A key finding of this study is that, despite having the same level of exposure to PebblePad, 3rd year respondents who were a year or less from degree completion were more likely to agree that PebblePad was useful for supporting their learning and evidencing their employability than 1st year students. This finding supports the results of Tymon which showed that final year students had a better understanding of what employers expected of them than did 1st and 2nd year students (Tymon, 2013). While students in the current study were not asked about their understanding of employability, it might be expected that 3rd year students would have a better understanding of the concept of employability than students in the first year of their degree. It may also be that 3rd year students have amassed more experiences to collate within PebblePad, in order to reflect on their development to evidence employability. Similarly, Tymon found that students of all year levels acknowledged coursework activities as contributing to developing relevant skills and attributes for employability, including practicing communication and self-management skills, working in groups and building confidence (Tymon, 2013). However, these activities were not emphasised by students as much as placement and work experience in developing relevant employability skills (Tymon, 2013).

While evidence suggests that the capstone placement experience conducted in the final year of study is fundamental to the construction of competence in students (Palermo et al., 2017), the Griffith University Bachelor of Nutrition and Dietetics program has increasing amounts of placement-related content from 1st year of the degree so that by 3rd year students have a more sophisticated understanding of the professional competencies than do the students in 1st year. This explains the enhanced positivity about the usefulness of PebblePad to evidence competency by 3rd year.

This study found that some students did not find PebblePad to be user friendly which impacted their perception of its usefulness for employability, suggesting they needed more support for its use. The university-wide evaluation found that students used their ePortfolio to support their course activities including reflecting on their learning, however, there were issues, with some being critical of it early on in the implementation (Campbell, 2019; Campbell & Duffy, 2019). The importance of providing adequate support for students using PebblePad and other ePortfolios has been acknowledged in the literature (Brennan & Lennie, 2010; Burkhart & Craven, 2020). Brennan and Lennie, in their survey evaluating the perceptions of the use of portfolios by 114 dietetics students from 11 United Kingdom Universities, showed that student understanding of portfolios was directly correlated with the amount of portfolio guidance they obtained (Brennan & Lennie, 2010). The technology skills of participants may have also impacted on this. While the majority of participants in this study were born into the digital age, digital fluency is a continuum that is influenced by multiple factors (Wang et al., 2013). This finding highlights the importance of providing appropriate PebblePad training to students from the outset, as well as providing ongoing guidance within university courses, to ensure that students are confident in its use to take advantage of the potential benefits.

Given reflection is a key skill for dietitians (Brennan & Lennie, 2010), reflective tasks were embedded within PebblePad assessments and workbooks. However, students felt the level of reflection to be excessive. This could have been due in part to the design and required sections of the PebblePad templates, and in part due to the way the assessments were designed, and requirements communicated. While ePortfolios have been shown to be useful in dietetics internships in the United States (Gaba, 2015), is it common for students to perceive that the level of effort required is excessive (Brennan & Lennie, 2010). Brennan and Lennie showed that while 92% of respondents agreed that the development of their portfolio was a valuable learning experience, 76% felt that there was too much associated paperwork (Brennan & Lennie, 2010). As their respondents were from 11 different United Kingdom institutions, it is a widespread issue beyond a particular ePortfolio tool, or type of portfolio. The time consuming nature of ePortfolios has also been identified as a disadvantage to using them within the recruitment process (Mitchell et al., 2021). The variability in students' perceived comfort with the process of reflecting may be linked to learning style. It is acknowledged that students with a theorist or reflector learning style (Honey & Mumford, 1992) feel more confident reflecting than those who are predominately activists and pragmatists (Brennan & Lennie, 2010). Given the importance of reflection and evidence demonstrating that reflection aids the transfer of knowledge and skills (Penny Light et al., 2012), reflective activities have been maintained. However, we have reduced the number and length of reflections to reduce student burden.

Graduate success is enhanced when students can develop their knowledge, skills, behaviours, attributes and attitudes throughout their degree and clearly communicate these to potential employers (Cole & Tibby, 2013). These fundamental components of employability need to be strengthened throughout their degree path, setting graduates up for lifelong learning (Cole & Tibby, 2013). It has been acknowledged that university students understand that their degree is just one element contributing to their employability (Tomlinson, 2008). In a study conducted by Tomlinson, higher education students understood that to set themselves apart from others they needed to demonstrate skills and attributes in addition to those gained from their degree (Tomlinson, 2008). Students close to graduation, in particular, could benefit from the discipline of documenting their learning in PebblePad and to continue that practice in their professional career. A recent systematic scoping review has evaluated the views of employers, industry representatives and university

educators for the use of ePortfolios in graduate recruitment (Mitchell et al., 2021). This review showed that awareness and use of ePortfolios in recruitment was low, and highlighted content recommended to be included in ePortfolios. Ensuring that key content is included in a graduate ePortfolio is likely to enhance employability (Mitchell et al., 2021). Additionally, students and graduates are encouraged to include the sharable link for their ePortfolio within job applications documents to allow employers to view ePortfolio as they would a website.

Limitations to this study should be acknowledged. Participant numbers were reasonably low, with response rates ranging between cohorts from 18% to 64% due to the timing and method of survey recruitment. In 2016, students were recruited via an email announcement after the teaching team had ceased face to face contact with the cohort. However, the demographic data of respondents is consistent with that of the cohort (unpublished data). In 2017, the method of survey delivery differed slightly, changing from a locally administered survey to an institution-wide survey. Unfortunately, this meant that some items, while similar, were not directly comparable.

Conclusion

This study showed that ePortfolios, in particular PebblePad, were perceived by dietetics students as useful tools for demonstrating employability. Changes in assessment design could further enhance the benefits of ePortfolios. It is important to remain focused on the learning outcomes for students when incorporating PebblePad into assessment and the curriculum. The key benefits of ePortfolios need to be clearly communicated to students, and training should be provided to show how PebblePad can be used to evidence competency and enhance employability. Further research needs to focus on student use of PebblePad in evidencing professional competency in job-seeking as they progress to graduation and employment.

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