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Enhancing student engagement through online portfolio assessment

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Dr Dawn Theresa Nicholson
 Manchester Metropolitan University

Abstract

This paper reports on an existing undergraduate academic skills module where the assignment, a printed portfolio, has been replaced with an online portfolio. Qualitative feedback reveals that students most valued the provision of rapid and regular feedback on work, and had a raised awareness of employability goals. Tutors most valued the ability to monitor students' progress and provide rapid feedback on work. Some also valued the ease of the marking process and the positive impact on tutorials. However, portfolio organisation adversely impacted on the marking process for some, while others struggled with the effect of the online approach on face-to-face meetings, highlighting the need for further guidance on tutorial management. Quantitative analysis of student grades tentatively indicates higher attainment levels for online portfolios compared with printed equivalents. The findings suggest that online portfolios, combined with progress monitoring, peer learning, feedback practice, and intrinsic motivation, can promote student engagement.

Keywords

Online portfolio; assessment; student engagement; skills; employability; digital literacy.

Introduction

In the context of undergraduate core skills teaching at an English Higher Education Institution (HEI), this paper evaluates the role of an online portfolio for enhancing student engagement. Student engagement is a complex concept, influenced by a range of psychological, behavioural, and socio-cultural factors (Kahu, 2013). The psychological view of student engagement emphasises students' internal drivers; their behaviours, cognition (e.g. self-regulation, deep learning strategies), and the affective (emotional) dimension. The role of emotion in student engagement should not be underestimated since it interplays with sense of belonging, intrinsic motivation, and instrumental motivation (i.e. driven by metrics such as grades) (Mann, 2001). The socio-cultural perspective of student engagement considers the broader social and political context of university education (e.g. McInnes, 2005). The behavioural view considers student engagement as a combination of time-on-task and involvement in learning, compliance (including attendance), and participation in the curriculum and extra-curricular activities. These are seen as behaviours that can be modified by HEIs and are evaluated through outcomes-based metrics such as rates of progression, proportion of good honours classifications, pass rates, and graduate employment (e.g. Kuh, 2009). Other proxies for student engagement include attendance, assignment submission, and VLE activity logging. Numerous survey instruments have been developed to assess this type of student engagement (e.g. Burch *et al.*, 2015; Kuh, 2009), while other instruments (e.g. Yorke, 2014) attempt to evaluate psychological and socio-cultural facets.

Online portfolios have been used as an assessment tool in HE as a mechanism for formative assessment, showcasing work, and for facilitating progress monitoring (Clarke and Boud, 2016). Easy access to student work enables direct observation and monitoring of progress, and the provision of prompt feedback promotes iterative learning and reflective practice, all of which encourage effective student engagement, and *productive learning* (Yang *et al.*, 2016). This paper critically evaluates staff and student experiences of using an assessed online portfolio as a replacement for a printed portfolio,

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and its effect on student engagement. First, there is a brief review of the use of portfolios and approaches to skills teaching and assessment in HE. Second, there is an overview of the module and its assessment, including a rationale for the new approach and consideration of risk factors. Third, an evaluation of qualitative feedback from staff and students is presented and discussed, together with a quantitative comparative analysis of student grades. Following a discussion of findings, next steps are outlined and conclusions drawn.

Online portfolios and skills teaching in HE

During their study, students need to acquire and develop a range of skills to support their academic work. Employers are also seeking graduates who possess generic and transferable work skills (Lowden et al., 2011). Highly skilled graduates can significantly enhance their outcomes and individual career prospects. Part of our role in HE is to support students in acquiring and showcasing those skills to prospective employers. Online portfolios, increasingly required in job applications, are one means to achieve this (Ward and Moser, 2008).

Engaging students in skills teaching, however, is challenging unless it is authentic; closely integrated with discipline knowledge and activities (Chadha, 2006), otherwise it can be perceived as dry and irrelevant (Cottrell, 2001). This was our experience with an early predecessor of the module discussed here, 'Communications and Information Technology'. This core module comprised weekly standalone (or 'bolt-on') skills workshops which were very poorly attended, and this led inevitably, to poor attainment levels and progression rates. The timing of skills teaching is also crucial to its effectiveness. Adopting the pedagogical strategy of Just in Time Teaching (JiT) (Novak *et al.*, 1999) - where there is a rapid turnaround between student activities, feedback, and subsequent class time - can help maximise effectiveness.

There are significant potential advantages to online portfolios compared with offline (e.g. printed hard copy) portfolios. Online portfolios can be developed using a variety of operating systems and free online tools. Their construction and use can enhance digital literacy (Lorenzo and Ittelson, 2005), and their creation and management by students aligns with practice that is more relevant in the 21st century. They are easily and quickly modified, and can be portable and transferable (Simatele, 2015). Online portfolios have significant scope for personalisation and creativity, and they are more environmentally friendly than their printed equivalent. A further significant advantage is that online portfolios can be viewed by multiple users synchronously. This means that a tutor with appropriate user rights can access and view a student's portfolio on multiple occasions prior to completion and submission for summative assessment. Many online tools adopted for portfolio-building also have back-end functions such as enabling comments to be added, and edits to be reviewed.

Academic background

This project centres around a Level 4 (first year) 15-credit, compulsory, academic skills module. It contributes to a programme comprising a total of 120 credits in each year, and is taken by undergraduate students from six cognate degree disciplines (Geography, Physical Geography, Human Geography, Environmental Management and Sustainability, Environmental Science, and Ecology and Conservation). The module is delivered by Personal Tutors via weekly, small group (5-6 students) tutorials that take place throughout the first term. This part of the module is assessed by a single piece of coursework weighted at 50%; an Academic Skills Portfolio. This is a compilation of evidence demonstrating acquisition of, and reflection on, a range of academic and interpersonal skills. These include critical thinking and appraisal, essay planning and writing, academic integrity (i.e. referencing and citation, and plagiarism avoidance), team working skills, time management, and oral presentations. Skills are developed in a discipline context, with topics mutually agreed between tutors and their students.

Previously, the portfolio has been submitted as a printed document at the end of the first term, although students are expected to bring examples of their work along to weekly tutorials for discussion and generic feedback. A common problem is that many students do not complete the weekly tasks in a timely fashion, but leave much of the work to the final deadline. This means they do not make timely progress, their final work tends to be rushed (and therefore of lower quality), and they are unable to benefit from progressive feedback. This also impacts on the organisation and content of weekly tutorials. Anecdotally, it is evident that in weekly face-to-face sessions, tutors often give considerable attention to students who have fallen behind, to the detriment of those who have not. Furthermore, students who *have* completed their work are sometimes reluctant to show it to others, fearing potential plagiarism. With variable engagement, it is difficult for tutors to gauge progress and put appropriate support in place. It was thought that moving to an online environment, to which tutors had complete access, might help remedy some of these issues and enhance student engagement. There were several specific objectives for the project. With the right digital platform and implementation an online portfolio might:

- Encourage students to engage in weekly tasks in a timely fashion, improve their own time management, and provide an effective mechanism for tutors to monitor their progress.
- Stimulate better student engagement in weekly tasks, portfolio construction, and tutorials.
- Enable the provision of regular, individual, written feedback (e.g. Lorenzo and Ittelson, 2005), and thus potentially enhance learning and attainment.
- Raise students' employability awareness early on by considering the portfolio as a potential showcase for prospective employers (Simatele, 2015).

A secondary aim was to enhance students' digital literacy and encourage personal creativity through portfolio-building in a digital environment (JISC, 2009). This would also provide for an assessment mode that is more relevant to current and future students in the 21st century.

Design and planning the online approach

A first step was to select a suitable online platform. The basic requirements were that it had to be portable (i.e. not tied to University systems, but available to students beyond graduation), well established and stable, easily and widely available, ideally free, and easy to learn and use. Some flexibility in design and structure was desirable to allow for customisation, and it had to be suitable for a range of file types. Sophisticated back-end functionality was also essential, with options for privacy, password protection, administrator rights, and comments. A demonstration workshop was arranged in the Faculty of Science and Engineering for existing users of online portfolios to showcase the platforms they had adopted. These included MyShowcase, Mahara, LinkedIn, the Harrison Assessment Tool, the standard Moodle interface, and WordPress.com. After further consideration WordPress.com was selected as the platform for this project. Although originally developed as a blogging tool, standard WordPress web sites can also be created, comprising a series of menu-linked static pages. This was the basis for portfolios developed in this project because they offer greater structural flexibility than time-linked blog posts.

The project took place in two phases (2015-16 and 2016-17). In each, around half of the total student group (Cohort A) developed and submitted their portfolio online (Table 1), while the remainder (Cohort B) submitted a printed portfolio. The two-cohort approach meant working with a manageable number of staff and students, reduced the risks associated with full implementation, and allowed for meaningful comparison to be made.

Table 1. Organisation of students and staff in each phase.

	PHASE 1 2015-16	PHASE 2 2016-17	TOTAL
Total number of students	119	113	232
Number of tutors	9	10	15*
Cohort A (online)	44	53	97
% of total	38	47	-
Number of tutorial groups	10	10	20

*Because of staff changes, 50% of tutors in Phase Two were new to the process. In the first Phase, one tutor had two tutorial groups.

In Phase One, tutors were largely volunteers, generally enthusiastic about the aims of the project, and self-identified as digitally literate. In Phase Two, staffing was broadened to include some self-identified 'sceptics' as this was thought to be a good way to iron out potential issues. In total, over two phases, 15 staff and 97 students (42% of the total) took part in the project. Students are allocated to a Personal Tutor from a cognate discipline. Within disciplines, they are then assigned to a tutorial group of 5-6 students on an alphabetical basis, thus there is no self-selection for students, they did not opt in or out of this project and their participation was arbitrary.

Several potential risk factors and their control measures were identified at the outset (Table 2). Potential technical challenges were managed by providing a range of resources, training and guidance for both staff and students (Table 3).

Table 2. Risk factors and control measures for the online portfolio.

RISK FACTORS	CONTROL MEASURES
Copying and plagiarism if sites accessible to peers (e.g. Yang <i>et al.</i> , 2016).	Student portfolios were made private, and only accessible to peers through temporary on-screen projection in class.
Modification of online portfolios <i>after</i> the assignment deadline.	With 'Administrator' rights assigned, tutors are able to view the site edit history.
Posting private and personal information.	All portfolios were set as private. Tutors also warn students of the dangers of posting personal information on the 'About Me' page.
Student concerns around lack of equity between the two cohorts.	Students' expectations were managed carefully, and tutors were open about the experimental nature of the project, its purpose, benefits, and risk factors. Tutors emphasised the identical assessment, criteria, and marking process for Cohorts A and B.
Potential for inconsistency in marking across the two cohorts.	Assessment criteria were identical for both cohorts. Design and organisation of the portfolio did not form part of the assessment.
Technical challenges.	Supporting resources and guidance were provided for staff and students (Table 3).

Project implementation

Cohorts A and B received a broadly identical experience. However, there were some differences. In the first tutorial meeting, the project was explained to Cohort A, and the benefits and advantages of an online portfolio highlighted. This discussion drew students' attention to the opportunity for

enhancing digital literacy, and the potential employability benefits of an online portfolio (e.g. as a showcase for prospective employers). The supporting resources and WordPress workshops were also highlighted. In subsequent weeks, Cohort B were expected to bring completed work along to tutorial meetings as hard copy, while Cohort A were expected to upload work to their online portfolios prior to tutorials. The way that tutorial meetings ran varied somewhat. Sometimes, student work was projected on-screen (or using tablets), with permission, to facilitate discussion, generic, and peer feedback. At other times it was more appropriate to have general discussion around hand-written drafts of work. In between tutorials, tutors could access students' online portfolios, monitor progress, read, and provide brief online feedback comments on work. Tutors were able to identify and encourage those who had fallen behind, but could also use in-class projection of completed work as an added incentive for engagement.

Cohort B submitted their assignment by posting a printed copy of their portfolio into the Faculty assignment posting boxes. Cohort A simply entered their web site URL into an online submission box in Moodle. This enabled the submission to be recorded and receipted in the usual way. Marking printed portfolios was either through hand-written comments on the manuscript, or a word-processed feedback sheet printed out or emailed to the student. Online portfolios were read on-screen, and feedback provided as a printed or emailed word-processed document. Tutors who had already provided weekly feedback comments on WordPress sites were encouraged to copy and paste those comments into the feedback proforma. Once the assignment was complete, students were encouraged to retain their sites for future use (e.g. for employability or personal use).

Table 3. Supporting resources and guidance for staff and students.

Resource	Target	Description
WordPress exemplar site (available at https://theresanicholson.wordpress.com/)	Staff and students	A mocked-up portfolio produced by the author to demonstrate the desired look and feel, with standard theme applied to ensure consistency (e.g. site structure and menu, page layout, extracts of activities).
WordPress workshop delivered jointly by the PST* and tutors.	Staff and students	A 1h workshop to support students in setting up their WordPress sites and applying necessary settings (e.g. enabling comments, tutor administrator rights, privacy). Optional in Phase One, compulsory in Phase Two.
Written guidance document.	Students	Largely replicating instructions covered in workshops, and only used in Phase One. Subsequently replaced with the Trello Guide (see below).
Trello Guide (available at https://trello.com/b/WtZnzNjd/wordpress-e-portfolio)	Staff and students	For Phase Two, an in-depth online resource developed by the author and hosted by Trello, a free, online project management tool. Subsequently used as the main resource in WordPress workshops.
Written instruction document.	Staff	Produced by the TELA** with an emphasis on handling back-end functions (e.g. reviewing edits, backing up sites, enabling and using comments, ensuring privacy).
*PST (Programme Support Tutor) optional weekly drop-ins.	Students	Subject specialist provided two dedicated one-hour drop-in sessions on a weekly basis.
**TELA (Technology Enhanced Learning Advisor) one-to-one support.	Staff	Following staff workshops in Phase One, one-to-one technical support was offered where needed.

Evaluation of student and staff experiences

At the end of each phase, a questionnaire survey (Appendix A) was used to obtain feedback from all student and staff participants. The survey and reporting are given ethical clearance by the institution under the arrangements for approved taught programmes. For students, the overall response rate was 76% ($n=74$), and for staff, it was 100% ($n=20$).

Students identified prompt feedback from their tutors as being a positive feature of the online portfolio experience:

Gaining feedback from tutors was extremely easy as I was notified via email when my tutor had seen the work and was easily able to view comments made on individual pieces of work.

They enjoyed aspects of the online approach that were not anticipated during project design. These included the value of their web site as a file repository and the environmental friendliness and financial savings from not having to print out a hard copy of their portfolio:

I enjoyed using WordPress and liked how it made keeping all work / information together in an easy to access place online.

It also saves a lot of money when printing.

Positives of ePortfolio more environmentally friendly, easier to send to tutors rather than printing off hard copy.

Some students liked the scope for producing something creative and professional-looking, and also the flexibility built into the online approach that meant work could be easily updated and amended:

I found WordPress very useful due to its ability to keep all work organised and neat and look professional.

Changes / alterations can be easily and quickly done.

Very easy to organise, you don't lose anything and easy to change.

Some students recognised that they had developed their digital literacy and that their web sites could be useful for employability and reflective practice:

Making a website seems like a useful skill to have, the site isn't hard to use at all.

It is very useful and is very current in today's technological society.

I will build up my portfolio to show to potential employers, to show what skills I have learnt during my time at university.

Tutors felt it was beneficial being able to monitor their students' progress, but also thought that *knowing* tutors were able to do this encouraged students to make more timely progress:

Much easier to check up on whether or not the students are doing the work as they go along, to check on progress.

From my perspective, it certainly helped them to keep track of where they were up to (and I could keep a checklist and remind them every week).

Students made progress on their portfolios week by week instead of leaving it all to the end. This was because they knew their sites were going to get displayed the following week.... and also because they knew I was looking at their sites and prodding them if they hadn't done the work.

Some tutors made effective use of the comments tool to provide brief feedback on uploaded work, or considered it had potential to improve their practice in the future:

I was able to give individual formative feedback on certain elements, which I did not have time in class to do before.

They ended up getting a lot more written feedback than I would normally give, but it didn't feel like any extra effort to me because I was doing it bit by bit.

I did not use comments in WordPress to provide formative feedback – I gave this verbally to students in the tutorial sessions, for essays I gave this on a hard copy. This could be a way I improve my use of WordPress in future.

In the evaluation, staff expressed strong feelings about the marking process. For some, the process was much improved, while for others, more challenging. The difference appeared to relate largely to the organisation, structure, and formatting of students' web sites:

Prefer marking electronic submissions, and making and formatting comments – less clutter and less likely to make errors / mess, and easier for students to read comments.

How well the students set up the WordPress site, and how they chose to post their portfolio elements, made a significant difference to how easy it was to review work.

Marking of the final portfolios took about the same time overall. I had already seen and commented on a lot of it so didn't have to do that again.

I found the ePortfolios took me longer to mark. This was due to the different format of each website and sometimes a wild goose chase to hunt down the different elements of assessment (unlike just flicking through a folder).

There were a number of comments from staff about the variable impact of online portfolios on face-to-face small group tutorial meetings:

There wasn't a great deal of difference in how the tutorials ran, we simply loaded students' sites onto the screen instead of poring over scraps of paper on the desk. This made the whole process seem a little more professional.

Tutorials didn't run as well in the first few weeks. Probably my fault as I hadn't anticipated that the students would not bring their preparation with them to the class – they uploaded it to their portfolio, which meant it was not available for discussion / reflection in the session.

In-class the students couldn't 'forget' to bring a printout of their work – so they tended to engage quite well.

Finally, tutors were aware that producing an online portfolio had enhanced students' digital literacy skills and employability awareness and credentials:

My students did recognise that making a website was a skill, but only after I had explained this to them.

Some really take it on and see the long-term benefits e.g. how they might use this for external or other activities.

They were unsure whether they would use their website afterwards, to keep updated and upload their CV etc. This did, however make it easier for me to get their attention for the skills audit, having just mentioned that they had developed a major new skill in web design.

Analysis of student grades

A simple statistical comparison using a t-test was conducted of grades awarded for online and printed portfolios. In Phase One, mean grades (Table 4) were slightly higher (2.6%) for printed compared with online portfolios. However, the two sets of grades were not significantly different from each other ($t = 1.53$, $df = 118$, $P = 0.129$). In Phase Two, mean grades were significantly higher (5.1%) for online compared with printed portfolios at the 99% confidence level ($t = 3.08$, $df = 111$, $P = 0.0026$). Not surprisingly, there is no significant difference in grades for printed portfolios between Phases 1 and 2, since there were no material changes in the process or product. However, mean grades for online portfolios were significantly higher (5.9%) in Phase Two compared with Phase One ($t = 3.12$, $df = 96$, $P = 0.0024$).

Table 4. Descriptive statistics for online and printed portfolio marks in both phases.

	PHASE ONE		PHASE TWO	
	PRINTED	ONLINE	PRINTED	ONLINE
Mean	64.4	61.8	62.6	67.7
Standard Deviation	9.1	9.5	8.4	9.3
Count	75	45	60	53
Skewness	-0.676	-0.213	-1.011	-0.441

A gender-based analysis of results shows that across both phases and methods, female students attain significantly higher grades than males ($t = 4.14$, $df = 230$, $P = 0.000$). This difference is particularly well reflected in the printed portfolio, where the combined Phase 1 and 2 mean for females (67.3%) is 7% higher than for males ($t = 5.05$, $df = 133$, $P = 0.000$). This contrasts with online portfolios, where there is no significant gender-based difference in grades for either phase. Further analysis reveals that in Phase 1, the portfolio format had no impact on the mean grade for male students. However, in Phase 2, the mean grade for males increased by 5% and the distribution was more positively skewed. In Phase 1, female students achieved a mean grade for the printed portfolio (68.3%) that was significantly higher than for the online portfolio (62.4%). However, this was reversed in Phase 2, with mean grades of 66.1% and 70.3% respectively.

Discussion

(1) Student engagement

The move to an online environment has enabled tutors to regularly access their tutees' portfolios, monitor progress, and provide feedback. These aspects were considered to be an improvement over the paper-based system. Even for a small number of tutees, it can be very difficult to assess a student's progress if they do not bring work along to a tutorial. In contrast, the online environment meant tutors

could access students' work outside of the tutorial and monitor progress. This approach reflects the behavioural understanding of student engagement (Kahu, 2013). What is interesting, is students' response to this overt 'tracking'. It appears that where tutors monitored progress *and* their tutees were aware of this (e.g. through regularly receiving feedback), those students responded by fulfilling their tutor's expectation, i.e. of timely completion. By inference, tutors who do *not* regularly look at their students' portfolios send a subliminal message either, that they do not care, or that the process isn't that important. In reality, this may not be the case at all; a tutor's non-participation may result from a variety of factors with no direct relationship to this particular tutor-student interaction. Nevertheless, if students perceive this to be the case, their response may be to defer assignment work until much closer to the deadline. Thus students' assignment-related activity may be influenced less by a tutor's instructions, and more by their behaviour, *and* the student's interpretation of that behaviour, a phenomenon that has been observed by others (e.g. Jordan, 2012).

The behavioural approach provides a useful framework for explaining simple interactions between teaching practice and student response, but valid criticisms have also been voiced. In particular, the over-reliance on measurement using survey instruments and other metrics, the emphasis on institution-control, and the disregard of psychological influences (e.g. motivation and emotion) on student engagement (Kahu, 2013). Mann (2001) also highlights the role of power relations and assessment practices on *alienation*, in effect, the inverse of engagement. Access to portfolios, in-class display of work to encourage 'peer pressure', and attendance monitoring, are all examples of how tutors, in this project, exert power over students. Students are also constrained in how their portfolios must be structured and formatted, and there is further control in relation to the assignment requirements and assessment criteria. Mann (2001) infers the dangers of this; "*the potential heavy hand of our assessment practices in the delicate world of the student's self*" (p17). By exerting power in this way we, in effect, also take ownership of the learning process. This potentially acts counter to the pedagogy around learner autonomy; a student's ability to take charge of their learning (Holec, 1981). However, there are several mitigating ways to look at this. First, the portfolio does allow for some creativity and personalisation. Students are encouraged to create an 'About Me' page and have free reign over the content and style of their home page. There is also flexibility and optionality built-in to some of the assessed elements.

Second, participants in this project are first year students, completing their first assignment in Higher Education, and in a transition period. Boud (1988), one of the early advocates of autonomous learning, recognised that students need to be *ready* to benefit from autonomy, and this requires skills in self-regulation and organisation; "*The ability to function well in a typical teacher-centred school environment does not necessarily transfer to other situations*" (Boud, 1988, p24). Thus the online portfolio offers students an opportunity to begin to develop some of those skills and to explore some avenues of individuality, but within a structured framework that meets academic requirements and pragmatic needs. Completion of the portfolio also includes some of the skills (e.g. time management, organisation, critical thinking, self-reflection) that will help nurture autonomy in learners (Fazey and Fazey, 2001). It is something of a paradox that learners need to be taught how to be autonomous (Little, 1996), but autonomy is less about the methods of teaching, and more about developing capability (Macaskill and Denovan, 2013). This particular module represents the beginning of a gradual handing over of control. As the online portfolio is rolled out, and integrated into Level 5 and Level 6 core modules in the form of a Professional Development Plan, students will be encouraged, indeed expected, to take increasing ownership of their work. After graduation, students will have complete control over their web sites.

Third, student engagement was lower in this module prior to the integration of an online portfolio. There was little opportunity for accountability, a lower level of attendance, and very poor completion

of tasks on a progressive basis. Thus it was not possible for tutors to provide feedback, and a key opportunity for student learning and improvement was not available.

In parts of the curriculum where student engagement is problematic, building in some form of incremental assessment work might be advantageous, particularly if it is accompanied by the facility for tutors to monitor progress. However, there are two provisos: First, tutors will have to stick to their side of the agreement; if students are being asked to complete work on a weekly basis benefit from feedback, that feedback *must* be provided for the process to retain credibility. There is a complex interplay here between mutual expectation, accountability, and bargaining. Second, 'progress' is really all about learning, and this can be maximised with a carefully designed assessment strategy (Gibbs, 2010). Ideally, there will be progressive engagement in small, but regular tasks that allow for feedback. However, there is a nexus to factor in, between the number of pieces of assessment and associated marking on the one hand, and the provision of frequent and prompt feedback on the other (Gibbs and Dunbar-Goddet, 2007). This may go some way to explaining why the use of portfolios has increased (Kahn, 2014), and why it is essential to support larger pieces of summative work with progressive formative assessment.

That said, some tutors did not regularly monitor their tutees' progress, especially in Phase Two, and there are several possible explanations for this:

- Technical barriers (e.g. the tutor was not given access to the site).
- Lack of confidence with technology. This might reflect the inclusion of tutors in Phase Two with a lower level of digital competence.
- Status of the project as a pilot, resulting in a lack of commitment from tutors to learning new processes and developing new skills.

This inconsistency in participation is probably no different than the variability inherent in any personal tutoring scheme delivered by a large number of individuals. The potential impact of such variation on student learning is of considerable interest, but as yet, is an area where little research has been conducted (McFarlane, 2016).

(2) Practical implications for marking, feedback, and tutorial management

Tutors who provided progressive feedback did so using the WordPress built-in comments function. This sent an automatic email alert to students encouraging them to read and engage with the feedback. Where the process was set up correctly it worked extremely well, was well received by students, and resulted in a reduced marking load for tutors in the final submission. The process of giving and receiving feedback was rapid and easy, and meant students were able to obtain more individual feedback than had previously been possible, and in a timely fashion, increasing its effectiveness (Gibbs, 2010). Individual feedback was then further reinforced through generic discussions during face-to-face tutorials. However, the process did not work well where site settings had not been correctly applied, or on poorly structured sites where there was a disincentive for tutors to take the additional time needed to provide interim feedback.

In the survey, students did not comment on the nature of the assignment, its criteria, or the marking process. This is not surprising since this was the first summatively assessed piece of work in HE for these students so there was nothing with which to make a comparison. For staff, the efficacy of marking was a function of web site organisation and file formatting. This was sometimes poor, despite the resources outlined in Table 3. Two refinements may help:

- Improved guidance around web site organisation and file formatting. This will also provide useful practice in carefully reading and following instructions, important life and employability

skills. However, a balance needs to be struck so as not to preclude creativity and personalisation.

- Incorporating portfolio presentation and organisation into the marking scheme, a suggestion made by one tutor in their survey response. This has not hitherto been possible because of the split group, as it was essential to maintain identical assessment criteria for each Cohort. However, this will be possible in a full rollout of the online portfolio.

Introducing the online portfolio had a variable effect on the running of face-to-face tutorial meetings. Positive impacts centred around improved student engagement in weekly tasks. Establishing the 'norm' that work will be regularly displayed in tutorials for others to see and learn from, creates an expectation and incentivises students to respond to mild peer pressure. This practice also provides opportunities for huge benefits through peer learning; "...students learning from and with each other in both formal and informal ways" (Boud, 2013, p4). Given early concerns around the potential for plagiarism (e.g. Cheng, 2008; Yang *et al.*, 2016) if students were granted access to each other's portfolios (within tutor groups), displaying portfolios on-screen during tutorials is a useful compromise that encourages peer learning. A further improvement was that discussions were sometimes more productive because students had already read and acted upon feedback. The tutor also had a clearer understanding of tutees' strengths and weaknesses and could re-direct tutorial discussions to those areas needing greater attention. Because some work was completed outside of the classroom, more tutorial time could be devoted to discipline content, rather than re-visiting the previous week's topic.

Adverse impacts on tutorials centred around the practicalities of viewing students' work. Some tutors had an intrinsic preference to conduct discussions around paper copies rather than an on-screen display. Others found using the projector was disruptive, damaged the group dynamic, and encouraged a didactic approach from the tutor and passivity from students. This plays to the teacher-student power relation and is not conducive to the communal learning that comes from socio-cognitive interaction (Qureshi and Stormyhr, 2012). Further guidance is needed to ensure that future face-to-face tutorials are more seamlessly integrated with the online learning environment.

(3) Assessment outcomes

It can be concluded, tentatively, that integrating an online portfolio into this module has improved assessment outcomes. This may reflect an intrinsic preference among so-called 'digital natives' (Ng, 2012) for working in a technology-enhanced environment. The nature of the process and product may provide sufficient motivation, derived from pleasure and enjoyment of the digital medium, to enhance student engagement. Notwithstanding this, associated practical benefits may also facilitate and/or incentivise students' work (e.g. ease of editing, file storage, and cost savings). The online portfolio offers much more opportunity for creativity and individual expression than the printed version, also resulting in a product that has the potential to be very different from other traditional coursework.

Alternatively, improved assessment outcomes may reflect students' response to tutors' oversight of their portfolios and receipt of regular feedback, in a way that has not been possible with the printed version. Students who complete work in a timely fashion and can benefit from feedback – further reinforced in face-to-face tutorials - are more likely to gain intrinsic motivation to continue this mode. Completion, constructive feedback and learning are indicators of success, and may instil in some students a sense of self-pride. If this is remembered as a positive and enjoyable experience it may trigger an ongoing desire to engage.

It would appear that grades for male students benefit the most from the move to an online portfolio, with an overall increase in the mean attainment and a reduction in marks at the lower end of the spectrum. Given that males in this module do not generally attain as highly as females, this outcome is welcomed. Grades for female students also increase a little, but the distribution is flattened and

more widely spread. These findings may reflect a male preference for computer-based activity and heightened technology confidence that has been observed by others (e.g. Terzis and Economides, 2011). Gender-related effects are complex, and although interesting, a detailed analysis is beyond the scope of this paper.

Conclusions: Next steps and lessons learned

In the third and final phase of the project, the online portfolio will be rolled out to all students in the group and thus, its benefits will be available to all. The rollout will facilitate the organisation of support (e.g. WordPress workshops) and remove some challenges related to the split cohort in Phases One and Two. Several improvements are proposed:

- All communication and guidance around the online portfolio will be embedded in the Tutorial Guide and accompanying Moodle site.
- The Trello Guide has been substantially updated to address the need for improved guidance on web site organization (<https://trello.com/b/dVB3W5pg/online-portfolio-guide-2017>)
- The assessment criteria and marking scheme will be modified to include portfolio structure, organisation and presentation.
- The potential employability benefits of the online portfolio will be better promoted (e.g. examples of showcase portfolios, explicit links to year two and three employability activities).
- Guidance for staff will be improved (e.g. integrating with tutorials, using the comments tool for feedback).

This project has added to the body of evidence exploring the effectiveness of online portfolios for learning in Higher Education. This learning is considered within the context of behavioural and psychological perspectives of student engagement, and may be driven by several factors including progress monitoring, peer learning, feedback practice, and intrinsic motivation. The new approach has led to improved student engagement, as reflected in behaviours such as attendance and participation in weekly tutorials, and timely completion of work. Tentatively, there has also been an increase in assessment outcomes, and feedback suggests that students have enhanced their digital skills and employability awareness. These positive outcomes are likely to result from the complex interplay of a number of factors including:

- Intrinsic preference towards a more relevant mode of assessment.
- Practical benefits from working in an online learning environment.
- Compliance in response to progress monitoring.
- The opportunity for creativity, personalisation and self-expression.
- A desire to engage in communal learning as a response to peer pressure.
- The incentive for enhancing digital literacy and employability awareness.

The behavioural and psychological aspects of student engagement reflected here are not mutually exclusive, and may in fact, operate on the same spectrum. What may begin as a mechanical response to an instruction (e.g. to upload work on a weekly basis) may trigger a sequence of experiences (e.g. learning from feedback, receiving encouragement or praise) that manifest in a psychological response such as self-reflection, intrinsic motivation to engage and the drive to succeed, development of self-regulation and basic autonomous learning skills. The relative weighting of influences on student engagement is difficult to determine, but collectively have resulted in a high level of satisfaction from all participants and considerable support for wider implementation of the online portfolio.

Tutor input in progress monitoring and feedback provision may be perceived either as a form of control and surveillance, or alternatively as attentiveness and caring. The apparent conflict between the nature of the tutor's involvement and learner autonomy has been discussed. However, it is argued

that in the context of a transition phase, Level 4 academic skills module, a greater level of tutor direction is appropriate, as is assessment work set within a strong academic and structural framework. These enable 'high risk' students to be identified at an early stage so that issues around attainment and alienation may be averted.

The approach described here will not be appropriate for every situation. However, it demonstrates the general principle that online portfolios, especially where integrated with face-to-face activities, facilitate progress monitoring and the provision of regular, prompt feedback, both of which have a key role in enhancing student engagement.

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Appendix 1

Tutorial and Field Activities: Assignment 1 Portfolio

Quick survey on your WordPress.com ePortfolio experience

This year, you were part of a pilot project involving around 50% of first year students, who prepared a WordPress ePortfolio for the Tutorials unit assignment, instead of the usual paper-based portfolio. To evaluate this pilot project it would be really helpful to have some feedback on your experience. Please answer all of the questions below as fully as you are able. Thank you very much for your input.

1. How easy did you find it to use WordPress.com?

Very easy Easy Neutral Difficult Very difficult

2. Did you have any technical difficulties while compiling your ePortfolio?

Yes No

If yes, what were those difficulties and how did you resolve them?

3. Did you attend the WordPress workshop run by the Programme Support Tutors?

Yes No

If no, please briefly say why not:

If yes, how useful did you find these sessions?

Very useful Useful Neutral Not very useful Waste of time

4. Did you use the Trello online guidance on how to format your work and where and how to upload it?

If no, please briefly say why not:

If yes, how useful did you find the Trello guidance?

Very useful Useful Neutral Not very useful Waste of time

Please quickly remind yourself of the guidance in Trello

(<https://trello.com/b/WtZnzNJd/wordpress-e-portfolio>) and tell us what can we do to improve it, make it easier to use, fill any gaps?

5. Do you think you might consider using the free, online Trello for other work, such as project management, personal time management, group projects?

Definitely Possibly Neutral Probably not Definitely not

Please briefly explain your response:

6. Did you use any other help guides to help you develop your WordPress (e.g. online help guides, YouTube tutorials, WordPress.com support forums)?

Yes No

If yes, please give an example: _____

7. How likely are you to keep your WordPress site and build on it during the course of your studies?

Very likely Likely Neutral Not very likely Very unlikely

Please briefly explain your response:

8. Based on your own experience, do you think we should switch to the WordPress.com ePortfolio for all first year students next year (as opposed to going back to a paper-based portfolio)?

Definitely Possibly Neutral Probably not Definitely not

Please briefly explain your response:

9. Please add here any other comments, observations, or other feedback about your experience of using WordPress for your ePortfolio.

Thank you very much for your input.

If you would like further information about this pilot project please speak to your Personal Tutor or to the project leader, Theresa Nicholson (d.nicholson@mmu.ac.uk)