

# ***Exploring health science learner experiences of formative and summative feedback in a networked environment through ePortfolios***

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## **Abstract**

For health sciences students who learn in challenging clinical environments, appropriate, timely and focused feedback is essential if they are to progress towards the goal of becoming self-regulated professionals and independent life-long learners. ePortfolios are an emerging technology which is gradually being integrated into the curriculum offering tools that can be used by learners to capture collate and reflect on feedback gathered over time from a number of sources. Although feedback is accepted as central to the learning process this area is still under-researched with even less available on how learners respond to feedback provided in the online networked environment. This paper presents the outcomes of a mini-project which explored health science learners' experiences of receiving feedback through an ePortfolio. A collective case study approach facilitated an in-depth perspective of learners' experiences: subject-based focus groups from radiography, physiotherapy and nursing enabled access to the learners' views and attitudes with regards to feedback in general and particularly through an ePortfolio. Although small scale, this study has enabled a rich picture of learner attitudes and preferences with regards to feedback to be developed, as well as assisting in aiding understanding of the impact of using such a tool for these particular learner groups. Our findings demonstrate that students perceive feedback to be a communication mechanism between tutors and students which specifically assists learning and understanding as well as confirming level of attainment and clarification of grade. In particular, learners liked the immediacy, accessibility and permanence of the feedback in the ePortfolio. Having the feedback and assignment in the same location was considered an advantage, as was having digital notification of when the feedback was available. However, despite these benefits learners still wanted the option of face-to-face feedback in addition to the written feedback available through the ePortfolio. A number of technical issues related to internet access were also identified which limited engagement with the ePortfolio. Guidelines are provided to assist tutors in using the ePortfolio as a tool to support learner engagement. It is suggested that tutors develop an assessment dialogue with learners which clarifies the purpose of feedback and expectations of student engagement with feedback. The ePortfolio could be used as a tool to facilitate this dialogue and for health science students particularly to assist them with reflecting on the challenging experiences of clinical placements.

## **Keywords**

ePortfolios; feedback; student attitudes; health sciences

## **Introduction**

Timely, appropriate and detailed feedback is central to the learning process and is vital if students are to become self-regulating and independent lifelong learners (Carless, 2008). Feedback can promote deep learning, increase reflective skills and help learners prepare for future learning events (Nicol & MacFarlane-Dick, 2006). It has long been acknowledged that feedback is essential to the student-tutor relationship and plays a critical part in improving motivation and student engagement (Nicol & Milligan, 2006). However, national student surveys

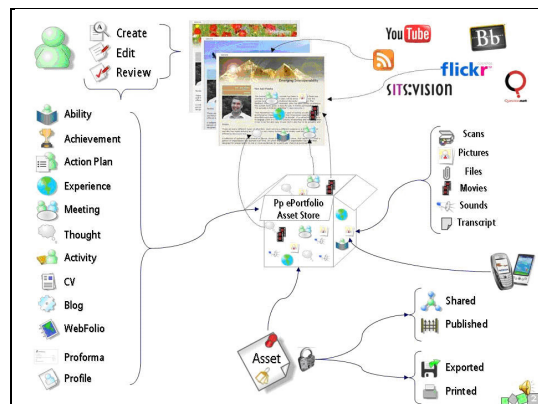
from Australia, the United States and the United Kingdom indicate a high level of student dissatisfaction with the level, amount, timing, quality, clarity and type of feedback received during their studies (Carless, 2008; Surridge, 2008). Conversely, tutors' perceptions are that students only read the mark, whilst feedback is usually ignored and generally only read if the mark received is higher or lower than the learner's expectations (Bevan, Badge, Cann, Willmott & Scott, 2008).

For health sciences learners, meaningful and clear feedback on progress is critically important particularly when it relates to their clinical practice. These students regularly undertake learning activities in the clinical environment which are less structured and predictable than those in the academic setting. Students need to identify and seize these learning opportunities as they arise, maintain records of clinical activity and to reflect upon their experiences; ePortfolio can support reflection through use of online journals (blogs). For these learners, interaction with members of the multi-professional team and with clients adds another challenging dimension to the learning process. A highly flexible individual response for learners is required with tutor feedback supporting students in developing knowledge and understanding, improving their ability to link theory with practice and facilitating the development of skills and competencies. The learner who receives no interactive feedback from supervisors and/or tutors, or who fails to engage with feedback when it is offered, is less likely to be able to link theory with practice effectively and in some cases to complete their studies successfully.

ePortfolios (electronic portfolios) are increasingly being integrated into the network learning environment in higher education in northern Europe, the United Kingdom and the United States (Strivens, 2007). An ePortfolio is:

an electronic system that facilitates the development, collection and management of digital resources which may be drawn from a range of learner experiences over a period of time and could include those from formal and non-formal learning opportunities. (Peacock, Gordon, Murray, Morss, & Dunlop, 2009, p.2)

A range of tools are available to the learner within the ePortfolio, such as blogs, webfolios, online CVs and proformas (see Figure 1): these may be used by the learner for assessed academic work, as part of continuing professional development (CPD) or for private individual use. These tools have the potential to help learners capture, collate and reflect on a range of feedback gathered over time from a range of sources. This can give the learner a more informed sense of their achievements and assist in demonstrating that they have met their professional bodies' requirements for CPD. This is quite unlike other forms of online assessment and feedback in the networked environment. Nevertheless just like other online environments, there are potential barriers to learner engagement with ePortfolios and feedback which could include computer anxiety, lack of access and poor usability, or inappropriate use by tutors (Ward & Grant, 2007).



**Figure 1: Range of tools available within an ePortfolio. (© 2008, Pebble Learning Ltd. Used with permission).**

Much available literature on feedback offers valuable guidelines and suggestions for tutors about the amount, focus, content and timing of feedback that should be provided to our learners (Gibbs & Simpson, 2004-05).

However, little quality research has been undertaken about students' attitudes to and experiences of feedback (Carless 2008; Poulos & Mahoney, 2008) and even less on how our learners respond to feedback provided in the online networked environment. Emerging research into student attitudes to learning in the networked environment gives us substantive evidence about how students like to learn online, their digital literacy skills, their familiarity with technology in the learning environment and their expectations of technology in the learning environment (JISC, 2009a; JISC, 2009b). Such results are mirrored in reports about student attitudes to ePortfolios (JISCinfoNet, 2008). Like all network technologies in their learning environment, learners welcome the ability to customise ePortfolios and the high degree of personalisation this tool offers. Critically students appreciate ePortfolios because they can include multimedia, such as evidence captured through mobile phones, and the ability to share artefacts within the ePortfolio with tutors, peers and potential employers who can provide relevant, timely feedback (Peacock & Murray, 2009). Again, a key feature of many technologies is that learners benefit from exposure to improve their digital and information literacy skills (Amber & Czech, 2002). However, whilst all this emerging research is particularly useful for educators, we need to know more about our students and their response to our introduction of such interventions in the networked learning environment if we wish to take a social constructivist approach to our learning and teaching.

This article provides an overview of the findings of a mini-project which explored health science learners' experiences of feedback generally as well as feedback through an ePortfolio. We outline the aims of the study and describe the ways in which ePortfolios are used to support feedback in each of three health sciences subject areas. We provide an overview of the findings of the research before discussing the implications of the research for educators. Finally we draw upon these findings to outline emerging guidelines for educators, which are applicable not only to use of ePortfolios, but also to other networked learning environment tools in current use.

## The study

### Aim of the study

The aim of our research was to conduct an in-depth study of learner experiences of using an ePortfolio to receive feedback, in order to:

- Build a rich picture of actual learner experiences of engagement with feedback, and feedback through an ePortfolio;
- Develop guidelines and case studies for educators to improve learner engagement with feedback.

### Case studies

In each of the five case studies in the health sciences (see Table 1) the ePortfolio has been used to help learners capture, collate and reflect on their feedback, assisting them to develop, over time, a more informed sense of their skills and achievements – linking their personal and professional development. Examples of ePortfolio use and feedback provision for these cohorts are set out within the subject areas as follows. Further information about these case studies is provided elsewhere (Peacock, Morss, Scott, et al., 2009).

**Table 1: Case study cohorts**

Subject area	Course duration and assessment	Students	ePortfolio usage and feedback
BSc (Hons) Diagnostic Radiography Year 2, 3, 4	4 years 1 summative ePortfolio assessment per level. Level 2, 3 and 4: 60 credits per module. 'Mark' comes from the staged assessments; ePortfolio is pass or fail, no specific credit awarded.	Level 2: 31 Level 3: 22 Level 4: 19 Full-time study	PDP, forms, blogs, webfolios  Formative and summative feedback

MSc Physiotherapy (pre-registration) Year 2	2 years 1 summative assessment incorporating four formative assessments. Credit weighted	26 students (females 17; males 9) Full-time and part-time study	Webfolio  Formative and summative feedback
BSc Nursing Year 4	5 months September – January 1 summative assessment based on webfolio. 30 credits.	35 students (female 34; male 1)  Full-time study	Webfolio  Summative feedback

#### *BSc (Hons) in diagnostic radiography, years 2, 3 and 4*

The ePortfolio is used primarily to help learners in Radiography to develop skills required to record and reflect upon their learning in the clinical environment and to demonstrate ability to link theory with practice. The learner is encouraged and supported in building a robust record of their learning by linking additional evidence recorded in a proforma (see Figure 2) to their reflective writing. Although a minimum structural and content requirement is specified, the learner may select their preferred tools and customisation is encouraged. The ePortfolio is also used to record clinical activity to ensure appropriate clinical experience for the student through their three years of study. The lecturer provides feedback on a regular basis and asks students to respond to this feedback. During their studies, the learners collect a vast amount of feedback which demonstrates their achievements and progress to date. Learners return to the feedback on a regular basis to review this prior to starting their next assignments.

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Clinical Activity Log (Level 2)

Shoulder Girdle

Shoulder Girdle Procedures

Please log below each procedure you perform with the relevant details. Please enter Y or N for each entry in the Observed, Aided or Unaided Columns. A MINIMUM of 10 AIDED and 10 UNAIDED procedures are required.

Date	Location	Examination	Observed	Aided	Unaided
06.10.08	A/E	Clavicle	3	2	3
*	A/E	Scapula	1	1	0
*	A/E	G/H Joint	4	3	4
*	A/E	A/C Joint	1	2	0

Tree view Show

Created this on 19 September 2008.  
It has been edited by  
This was last edited on 07 October 2008.  
Export in a progress contents

The ePortfolio @ system has been developed by Pebble Learning in collaboration with the University of Wolverhampton. Queen Margaret University is responsible for this installation of PebblePAD. As assertions made by users of the system are subject to their disclaimer and this code of conduct.

**Figure 2: A radiography clinical activity record (Proforma) within a webfolio**

#### *MSc (pre-registration) physiotherapy programme, year 2*

Physiotherapy learners use the ePortfolio to develop and maintain a portfolio of evidence of learning. Students are encouraged to reflect upon their academic and practice-based experiences using the blog and proformas. These experiences are then integrated into a webfolio for summative assessment. Formative feedback is provided when a draft webfolio is submitted and on summative webfolios. These learners begin using the ePortfolio in their first year, focusing on reflection and practice. From their second year of study the ePortfolio has the additional focus of CPD preparing the physiotherapy students for their first few years of practice.

*BSc (Hons) nursing, year 4*

Nursing students use ePortfolio to develop a summative webfolio which demonstrates their development of clinical leadership. These learners are encouraged to reflect on the learning outcomes of the module and to create a section for each of these within their webfolio. Assessment for this module focuses on the content and the linking of knowledge aligning with the structuring of their portfolio for coherence and congruence. In this case students are provided with written feedback only at the end of the module.

**Methods**

This study was essentially qualitative and involved a collective case study approach, focusing on groups of learners from radiography, physiotherapy and nursing. Studying cases where ePortfolios have been integrated into the curriculum enabled generalisations to be applied across health science subject areas within our institution and has the potential for application across a wider population of health science learners’ within the field of higher education (Stake, 2000). Ethical approval for this study was granted from the institution. Research questions included:

- Do health science learners engage with feedback provided through ePortfolios? If so, in what ways and with what kinds of feedback?
- What are the benefits for learners in engaging with feedback through ePortfolios?
- What are the barriers to learners engaging with feedback through ePortfolios?

In order to address these questions a dual approach to data collection was taken, which facilitated a more thorough understanding of how different ways of using the ePortfolio may have helped learners to engage with feedback across and between modules. Data were gathered from participating tutors through online forms and sought details regarding tutors’ experiences of using ePortfolio for providing feedback to learners, as well as contextual information regarding student cohorts and areas of use. The online form was part of the ePortfolio system which these tutors were familiar with and furthermore, offered greater protection for data collected, being an institutional system. Data were gathered from learners by use of focus group technique, which allowed us to gain access to learners’ views on their experiences of feedback and ePortfolios through the forum of a peer group discussion.

*Focus groups*

A series of six focus groups were conducted and consisted of participants from naturally occurring cohorts (Kitzinger, 1995) in the health science areas of radiography, physiotherapy and nursing (see Table 2). Focus group discussions were audio-recorded and where possible facilitated by the same researcher on each occasion. This approach can aid consistency of style, helping to reduce risks of bias or manipulation (Litoselliti, 2003). Demographic data and preliminary views were collected from participants prior to the start of focus group sessions and these were helpful in enabling comparisons to be made across groups (Bloor, Frankland, Thomas, & Robson, 2001). Topics of discussion focussed on participants’ experiences of, and engagement with, feedback in general, as well as through ePortfolio. Transcripts of audio-recordings were reviewed individually and systematically by the researchers and initial index codes assigned. The researchers then met as a team to discuss, review and revise as appropriate. Using an iterative approach, data were revisited and further coding developed, leading to a narrower focus and the emergence of sub-categories. All transcribed data were considered during this process in order to maintain rigour and ensure no bias was involved on the part of the researchers (Bloor et al. 2001).

**Table 2: Focus group cohorts**

<b>Case study</b>	<b>Focus groups</b>
BSc (Hons) Diagnostic Radiography Year 2, 3, 4 PDP, forms, blogs, webfolios Formative and summative feedback	Group 1 (yr4): 4 females, 1 male, mean age 30.8 Group 2 (yr2): 3 males, mean age 42.6 Group 3 (yr3): 3 females, 1 male, mean age 28.7
MSc Physiotherapy (pre-registration) Year 2 Webfolio	Group 4 (yr2): 4 females, 3 males, mean age: 30.3

Summative feedback	
BSc Nursing	Group 5 (yr4): 6 females, mean age 23.8
Year 4	Group 6 (yr4): 6 females, mean age 22.5
Webfolio	
Summative feedback	

### *Online forms*

Three tutors from the subject areas of radiography, physiotherapy and nursing completed online forms, which consisted of 31 open-ended questions regarding their use of ePortfolios for feedback and assessment with the student cohorts participating in this study. Data gathered in this way were reviewed systematically by the researchers and used to develop case studies demonstrating ePortfolio use for feedback on assessment in each of the three subject areas.

## **Findings**

Our findings reflect the aims and research questions of the project and we present a flavour of these here. Initially we report student expectations of feedback and then their experiences of using feedback in ePortfolios before outlining their barriers to use of feedback in ePortfolios. In the discussions we use the findings to develop a rich picture of students' experiences of feedback, and feedback with ePortfolios.

### *Student expectations of feedback*

Feedback is generally viewed by learners as a communication mechanism between tutors and students to:

- Confirm level of attainment;
- Offer clarification of grade;
- Assist learning and understanding;
- Improve motivation;
- Build confidence;
- Provide signposting for future development.

The following quotations from a fourth year nursing student and a second year master's physiotherapy student demonstrate the importance placed on feedback by learners and their engagement with feedback.

Sometimes you can go back and ... like kind of discuss it through with your tutor and say 'well how can I change that?' or ... I find it quite useful to go back for more feedback on your feedback... (Nursing student).

I think feedback is critical... comments from whoever it is who's read your piece of work and just helping you to understand ... how you could have done it better" (Physiotherapy student).

### *Student engagement with feedback and ePortfolios*

This varied considerably from learner to learner and between subject areas and included:

- Reading in-depth or just skimming;
- Retaining feedback within ePortfolio and/or elsewhere;
- Printing;
- Questioning – independently and/or with feedback provider;
- Returning to feedback at a later date to reflect on and/or take forward.

For example: "If you get the feedback and it's quite clear and you know you did wrong you can use that... you go through it, you read it..." (Physiotherapy student). However, not all students engaged with the feedback through the ePortfolio: "I just look at it and read it but that's it because that's the past. I don't want to be bothered much." (Physiotherapy student)

### *Learner response to feedback provided in the ePortfolio*

Generally, learners felt that the feedback given through the ePortfolio was immediate, always available, permanent and easily accessible from 'remote' locations outside the institution. Learners particularly liked being able to log on and read their feedback rather than having to collect paper feedback from the university. The permanency of feedback in ePortfolio is linked to a tendency for individuals to lose documents. Accessibility is important for those students who are engaged on a distance-learning programme or who are on placement in the clinical environment. Learners particularly found it useful having the feedback and assignment in one place and that it was easy to find. This is particularly relevant to students whose ePortfolio houses an extensive body of work in a single location rather than in multiple folders. Finally, learners enjoyed receiving a digital notification through their email that their feedback was available:

I find it easy to access to be fair it pings up you get mail pinging up saying you have had feedback on your e-portfolio so that's fine I go in and have a look at it user friendly it comes up, you can see it. (Radiography student)

I quite like the fact that if there's one specific issue you can generate a dialogue and I would never have done that with a paper-based feedback. (Radiography student)

...it's quite nice knowing it's going to be there and it's safe and you can access it whenever. (Nursing student)

### *Learners' perceptions of the barriers to using an ePortfolio and feedback*

There was a strong preference from many of our learners for face-to-face feedback in addition to the written feedback available through the ePortfolio as this Physiotherapy student indicates.

I'd hate to think that ePortfolio would mean that you wouldn't get any of that type [*referring to face-to-face*] of feedback. I mean I think it's nice to have it but I'd hate it to overtake, you know just get rid of the verbal feedback or any kind of interaction because that would be wrong.

This preference was expressed by students who were dissatisfied by the quality or personalisation of feedback received and who felt that they benefited from being able to target specific points for clarification through face-to-face discussions with tutors. Written feedback was often perceived as a springboard for discussions with tutors.

Few technical issues were identified but these mainly related to lack of, or limited internet access whilst learners were on clinical placement. This was because firewalls have been implemented in the UK's National Health Service to restrict access to confidential patient data. A further area of concern is the difficulty many international students face in working in a networked environment. Finally for some students, especially those in fourth year, there was a reluctance to learn another system and the time required to make the most of this new system.

## **Discussion**

Our findings have helped us to build a rich picture about our learners with regard to feedback, and feedback through an ePortfolio. Learners have definite but very varied ideas about, and expectations of, feedback. These particular learners collected their feedback and wanted it to praise their achievements, acknowledge their effort and then specifically to outline what they needed to improve for future performance. In many cases, there was a high expectation that feedback would explain in detail what was incorrect, such as how to perform a correct procedure, rather than being guided in the direction of how to re-visit their work and explore independently what was wrong and then to evaluate their own practice. Nevertheless there was a high level of engagement with the feedback that was provided and a genuine desire to learn from it. These students returned to their feedback on a regular basis and used it in preparation for future assignments.

Typically the way in which students responded to feedback in the ePortfolio system mirrored how they interacted with paper feedback. Consequently most learners focussed on the technical advantages of using the system to improve access to feedback, including organisation of materials and legibility of tutor feedback comments. A few noted the environmental benefits of reduced printing. These advantages demonstrate learners' overwhelming perspective of feedback as a transmission from their tutors. Unsurprisingly most of the disadvantages of using the ePortfolio focussed on reduced access to feedback because of limited system availability and robustness.

## Guidelines for educators

From our findings, suggestions and guidelines for tutor use of the ePortfolio as tool to support learner engagement with feedback are beginning to emerge. Some of this advice is applicable to many tools currently in use by tutors in the networked learning environment such as:

- Tutor engagement is vital. If a tutor really engages with the ePortfolio, particularly for their own CPD, then the students will follow. If tutors are tentative then the students will also be;
- The timing of when technology is introduced is critical: Introducing the ePortfolio towards the end of a programme irritates students: it is another system to learn which is distracting. To gain the full benefit of an ePortfolio and the feedback contained, it needs to be introduced early and repeatedly.

When embedding a Virtual Learning Environment (VLE) into the curriculum, similar advice would be highly appropriate. However, our findings have also highlighted areas which are specific to the ePortfolio including:

- Easy access to the feedback in the ePortfolio is critical. Students liked the digital notification when feedback was available but were then irritated at having to search to find the feedback;
- The content of the feedback provided should consider both the materials in the ePortfolio as well as the design. Learners want feedback on both the structure and organisation of their materials in the webfolio (providing materials online is new to them) in addition to feedback on the content which is related to the assessment task. Learners are very confused and frustrated when the feedback they receive does not seem to relate to the task that they have been given. Tutors need to think actively about aligning their feedback with the assessment and improving their use of assignment criteria;
- Learners need regular reminders to review their feedback in the ePortfolio. Tutors need to encourage students to refer back to their feedback to help them apply it to their general development in all areas of their programme.

Nevertheless, for ePortfolios to be truly successful in facilitating learning, tutors need to enter into an assessment dialogue with students which outlines the purpose of feedback, its role in learning, the language used, and to clarify what feedback will and will not include (Carless 2008). This dialogue needs to explain how to use ePortfolios as a reflective tool in which they can store and regularly access feedback from a wide range of sources and how to use it to become self-regulating independent lifelong learners.

## Conclusions

Our small-scale study has a number of limitations including the small number of participants but it provides an insight into our learners' perceptions of, and attitudes to, feedback and feedback in the ePortfolio. Throughout it was apparent that all our learners valued feedback but there was a lack of understanding about its role, the academic language used in feedback by tutors and how this related to assessments, assessment criteria and the learning outcomes for a module. ePortfolios were seen as a practical vehicle for receiving feedback and as a springboard for further tutor discussions. However, few students actively sought to use feedback as a reflective tool to encourage independent learning and to become self-regulated learners.



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