Chapter XVI Using ePortfolios to Enhance Reflective Learning and Development

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ABSTRACT

This chapter argues that it is essential that ePortfolio development is driven by pedagogical considerations, thus ensuring the effective use of these technologies to support learning. Drawing on experience of implementing ePortfolios in an institutional context, the chapter considers how best to meet the needs of learners within a system of effective eLearning support and emphasises the key role of developing reflective writing skills if the ePortfolio is to be an effective way of learning. Creating and deploying key learning activities that effectively use ePortfolios is now a much greater constraint to the correct use of ePortfolios in learning than the technical design or capabilities of ePortfolio software.

INTRODUCTION

Professional programs within the higher education sector in the United Kingdom have used portfolios for many years, both to support learning and to provide evidence of attainment of specified professional standards. Portfolios have provided a vehicle for the collection, selection, reflection, and direction of learning (Danielson & Abrutyn, 1997). This description of purpose

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fits well with the concept of the reflective practitioner (Schon, 1984) and its development into the reflective professional (Light & Cox, 2001). It also links well to the concept of metalearning: "being aware of and taking control of one's own learning" (Biggs, 1985, in Jackson, 2004). Within education, for example, the portfolio is seen as an effective vehicle to capture the complexities of learning, teaching, and learning to teach.

The teacher is capable of reflection leading to self-knowledge, the metacognitive awareness that distinguishes craftsman from architect, bookkeeper from auditor. A professional is capable not only of practicing and understanding his craft, but of communicating the reasons for professional decisions and actions to others. (Shulman & Sykes, 1983)

In other professions, such as architecture or surveying, the portfolio provides the vehicle for undertaking and recording the initial experience in the workplace, a key requirement for full membership of the professional body.

The debate surrounding the use of portfolios has widened beyond professional disciplines, however, with the emergence of the concept of personal development planning (PDP), which is defined as "a structured and supported process undertaken by an individual to reflect on their own learning performance, and/or achievement and to plan for their personal, educational and career development" (Jackson, 2001). First recommended in the United Kingdom Dearing Report (NCIHE, 1997), higher education institutions are expected to have institutionally determined policies to support PDP in place by the 2005/2006 academic session. While the PDP movement reflects a number of factors, such as a focus on quality assurance and a concern with hancing student employability, significantly it assumes a shift towards student-cantered learning, and the emergence of the autonomous learner (O'Connell, 2003).

REFLECTIVE LEARNING

From a review of the academic literature, it is evident that there is a growing emphasis on reflective learning and practice in higher education, mainly but not exclusively associated with the education of professionals. Reflection is generally accepted to be an active and deliberative, cognitive process which, according to Reid (1993), involves "reviewing an experience of practice in order to describe, analyse, evaluate and so inform learning about practice." Moon (2004) distinguishes between a common-sense view of reflection and an academic one, with the latter involving a clearly stated purpose and an outcome "specified in terms of learning, action or clarification."

A number of authors have explored the concept of depth in reflection, resulting in the development of frameworks that distinguish between surface and deep approaches and help facilitate assessment (Van Manen, 1977; Hatton & Smith, 1995; Moon 1999). Reflection is largely absent from the surface levels, being characterised by simple recording of events, and it is most significant for approaches associated with deep learning, as the learner develops an ability to engage in a process of 'framing and reframing' their conceptions of knowledge. Deeper levels of reflection are most likely to result in quality learning outcomes.

IDENTIFICATION OF THE NEEDS OF LEARNERS

The needs of learners within higher education are rapidly changing. Traditional modes of learning, based on face-to-face contact in small groups, are Using ePortfolios to Enhance Reflective Learning and Development

increasingly being replaced by the asynchronous acquisition of knowledge using eLearning technologies. Learning is no longer fixed in space or time. The use of virtual learning environments are having an impact on distance and campus-based learners, as both sets of students have flexible access to materials, are able to engage with tutors and peers through discussion boards, and can vary their patterns of study to suit employment and personal circumstances.

For all students, however, whether they are predominantly on campus or distance learning, in professional programs or general programs, there is a common need in terms of supporting their reflection and their learning. This is the need to provide a means of collecting and organising evidence, the facility to connect and manage reflections based on collected evidence, and the ability to share their reflections with peers and tutors, with the added possibility of assessment for both formative and summative purposes. Assuming a constructivist pedagogy, reflection is vital as it not only allows learners to make sense of their experiences and values, and to develop necessary skills for action, but also to take responsibility for their own learning. This is increasingly important in the modern, higher education world.

TECHNOLOGICAL MATCH

The growth of the ePortfolio has provided a means of addressing some of the problems encountered in using traditional portfolios. The physical extent of the traditional portfolio was often seen as the critical factor by students, who would assume that a successful portfolio was a large portfolio, and thus that size was more important than quality. In addition, students could find it difficult to capture the increasing range of evidence upon which to support their reflections, and to comment on and manage reflection based on evidence. The sheer physical size of portfolios, together with the occasional geographical distance between peers, could make it difficult to use peer-supported learning in respect to these portfolios.

The development of Web-based portfolios seemed to provide an answer to some of these problems, allowing the collection of evidence of a digital nature such as electronic documents, PowerPoint presentations, digital photographs, and audio and video recordings. However, a major stumbling block to the development of Web-based portfolios was the need to develop competency in HTML and other Web skills, such as FTP transfer, and so on. While IT literacy is a vital transferable skill for many graduates, there was a danger that a major focus on technical IT-related issues would diminish the focus on the development of essential knowledge, understanding, and skills.

It is only with the development of online ePortfolio systems that a genuine solution has been found. Systems such as Blackboard and the customizable "generic" ePortfolio that has been developed at the University of Newcastle (http://www.e-portfolios.ac.uk/FDTL4?pid=54) have enabled learners' needs to be met without the major demands on time posed by the possible necessary development of Web-based skills. Effective Web-based portfolio management systems have provided a straightforward interface for users. This has allowed students to focus on their own learning needs, rather than on the skills necessary for Web-based collection and presentation that demanded additional time and effort, and detracted from the higher order skills of analysis, synthesis, and evaluation (Bloom, Mesia, & Krathwohl, 1964). The technology of Web-based portfolio management systems has allowed a continued and appropriate focus on reflection and meta-learning.

In addition to enabling collection and presentation of evidence and associated reflection, integrated Web-based portfolio software tools permit the sharing of these with both peers and tutors, thereby supporting and encouraging formative and, in some cases, summative assessment. Time and distance is no longer a problem. However, access to IT equipment is essential as is convenient and appropriate Internet access from home or study room. For institutions, this brings about increasing demands on IT infrastructure in terms of software, server space, and staff support.

Off-the-shelf systems such as Blackboard (ePortfolio) and ePortaro (Folio) provide an optimum solution for institutions that support a range of programs. However, there are examples of where *bespoke* systems have been used with effect, such as the FDTL-funded project to develop Web-based ePortfolios for undergraduates studying Medicine, based at the University of Newcastle and involving the University of Leeds, the University of Sheffield, and the University of Dundee. ePortfolio software is likely to continue to evolve at a rapid rate, but the core functionality is now stable and available.

ePORTFOLIOS IN PRACTICE

Professional education is central to the University of Dundee, which has more graduates entering the professions than any other university in Scotland (University of Dundee, 2002). Programs are offered in a range of professional disciplines, including medicine, education, engineering, and architecture, and these programs have extensive experience in the use of portfolios to support learning and to provide evidence of attainment. The University of Dundee uses Blackboard as its VLE, and despite some experience of alternative systems, in early 2004 it was decided to adopt the new Blackboard content management system including its ePortfolio facility. The ePortfolio system was piloted with two main groups of students during the 2004/2005 academic session, and the results were evaluated using questionnaires and focus groups. The experience gained throughout these pilot projects has been of central importance for planning the wider use of ePortfolios across the campus in years to come.

The first cohort was studying for a one-year post graduate diploma of Secondary Education. This is nationally accredited by the General Teaching Council (Scotland), and by the end of the course, students are expected to provide evidence that they have satisfied the Standards for Initial Teacher Education (SITE). To assist the students they were provided with an electronic template of the standards in a tabular form consisting of a two-column display, where the left-hand column listed the standards and the right-hand column provided the students with the space to evidence that they had achieved the standards.

A major aspect of the approach taken in this program was the focus on IT for learning as a means of developing appropriate skills in new teachers. Each student was issued a laptop computer to use for the duration of the one-year program. Within a short period of time, during the induction block, students were introduced to their laptop, the university e-mail system, the virtual learning environment, and the content management system, including the ePortfolio. This was a mistake. Too great a demand was made of incoming students too soon. There was a major focus on developing baseline skills associated with e-mail, VLE, and content management. As a result, students considered that portfolio construction was simply about collecting electronic evidence or artefacts. They failed uniformly to select, reflect, and direct. Time was wasted. The unfulfilled expectations placed on students generated more pressure and potential stress than was planned for, and we observed evidence of student anxiety and confusion. It was only after considerable remediation in the later stages of the one-year program that tutors helped students to develop the analytical and reflective writing skills that made the ePortfolio the successful learning vehicle that it was envisaged to be.

Tables 1 and 2 illustrate the progression made by a student as he developed his ePortfolio. In the first, we can see all he has done is to collect a series of artefacts which he has linked to his ePortfolio, whereas in the second, although he still has links to artefacts, he has initiated commentary on these artefacts and is beginning the process of greater personal reflection in trying to evidence attainment of the professional competence indicated in '1.1.1'.

The second group of students who developed ePortfolios were in the second year of an undergraduate MA (Honours) degree in Town and Regional Planning. Recognizing that planning is a varied and dynamic field of activity, the Royal Town Planning Institute (RTPI), the United Kingdom professional body, does not require accredited programs to follow a prescribed curriculum allowing planning schools to have the freedom to develop their own distinctive approaches. However, the RTPI has identified a series of indicative learning outcomes that it expects typical graduates from spatial planning programs to be able to demonstrate (RTPI, 2004).

Initially, the planning students were introduced to the concept of PDP and the relevance of the process to their future employability and

Table 1. Before reflection

SITE Target	Student Comments
1.1.1 Acquire a knowledge and	Module assessment
understanding of the relevant	Module 1 feedback
area(s) of pre-school, primary,	SE1 evaluation
or secondary school curriculum	SE1 feedback
	Importance of physics
	5-14 structure and balance

careers. This was followed by a series of exercises around the creation of a portfolio using the Blackboard portfolio system. Central to the approach adopted was the use of skills templates, based on those developed for RAPID (Recording Academic, Professional, and Individual Development), a system developed at the University of Loughborough. The templates selected, which covered communication skills, working with others and self-management, were linked to the learning outcomes of the modules being studied.

Overall, the student reaction to the process was positive. The students seemed to have no preconceived ideas about PDP, or indeed much awareness of what it was about, prior to its introduction. They quickly got behind the concept and were particularly positive about the idea of being able to record how their skills would develop, adapt, and improve throughout their time at university. Having used Blackboard the previous year, the students were very positive about using an eLearning system, but the general consensus was that initially it was

Table	2.	A	fter-interim	reflection

SITE Target	Student Comments
1.1.1 Acquire a knowledge and understanding of the relevant area(s) of pre-school, primary, or secondary school curriculum	I have acquired knowledge and understanding of the relevant curriculum areas (physics and 5-14 science) through my school placements, in-faculty lectures, course activities, and my personal readings. <u>My formative report (SE1)</u> , teacher mentor <u>summative report (SE2)</u> , <u>Module 2 assessment feedback</u> , and <u>SE3 PR report</u> demonstrates my clear commitment to develop my knowledge and understanding. During my placements I have taught all years and ages covering a wide range of courses. Example lesson plans showing the range of curriculum I have taught are: S1 Science Chemistry (Gas Tests).

quite difficult to understand what ePortfolio was all about. All agreed, however, that once introduced to the system, ePortfolio was easy to use. In fact, it proved to be quite a confidence booster to those students who had been intimidated: "I found it a good learning experience. It was quite rewarding to discover being able to use it and use it quite easily." In addition, the students commented on the usefulness of a tool by which they could add data and information from their personal development planning activities into a portfolio and then potentially share with future employers or other lecturers. However, the students found the reflective dimension of the process to be challenging, with many of them focusing more on what they had learned rather than how they had learned. In this context, there was general agreement about the potential benefits of allowing peers and tutors access to their portfolio to give comments and feedback.

THE IMPORTANCE OF REFLECTION

Overall, the experience of using a professional Web-based ePortfolio system with students from different backgrounds was a positive one. Students were supportive of the concept of PDP and recognized the advantages of having an e-based framework to assist this process. Once students have become familiar with the system and have gained confidence in their IT skills, they find the process of creating portfolios relatively straightforward. The integration of the portfolio system with the wider virtual learning environment is important to users. However, as noted by Cotterill, Darby, Jones, Van Tarwijk, and Veugelers (2004), there may be a real danger that users will value ePortfolios primarily as useful and flexible repositories, containing personal details, transcripts, and

examples of work, and they will not embrace the reflective dimension which is critical to the creation of the autonomous learner.

It is vitally important that IT skill development, which is needed to enable students to create portfolios, and the skills of reflection and reflective writing are kept separate early in the process. Once the necessary IT skills are in place and once reflective writing skills are developing to an acceptable extent, then the two can be brought together. Students need to access the ePortfolio system early on to collect and store the artefacts or evidence that they think they will use to support their statements of development or attainment. In an appropriately separate way, they need, through a series of tasks, to develop an understanding of reflection and the skill of writing reflectively. An important outcome of this pilot work has been the recognition that the different uses and applications of ePortfolios should be clearly introduced, and that detailed tuition of how to use an ePortfolio system to support reflective practice should be retained for a later session and deployed only when the students are comfortable with the technical basis of the ePortfolio software in use.

Reflective writing is not easy and, as Moon (2004) suggests, it is questionable whether all tutors who tell students that they must show evidence of reflective learning themselves have a clear idea of what to expect or how to guide students. Most students are unfamiliar with the process of writing in reflective mode and need an early introduction as to what is expected of them. This may become easier with successive cohorts of students, as examples of good practice can be used to give an indication of how they can acquire knowledge from both the relevant theories and placements, and then use this knowledge to analyse its impact of their own practice and development. The skill of reflective writing is more difficult than the skills

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necessary to construct and manage the ePortfolio, particularly when using a commercial product. The emphasis must therefore be on the skills of reflection and reflective writing.

ePortfolios can, however, be used to support and facilitate the reflective learner in a number of ways. The careful design of templates within the ePortfolio, tailored to meet the needs of a particular subject discipline or profession, can be extremely valuable in encouraging the reflective process. A good example of this is found in the RAPID (Recording Academic, Personal, and Individual Development) system, which includes a sophisticated set of templates designed for use by students within the built environment professions, such as engineering and town planning (http:// rapid.lboro.ac.uk/). There are over 60 different templates, covering both generic and disciplineoriented skills, and each template describes four levels of achievement. This not only helps students to identify their competence at a specific point in time, but also to reflect on their progress in enhancing their skills.

Students can gain enormously from sharing thoughts and ideas about their learning with others, and the ePortfolio facilitates such exchanges. Students can share their portfolios with peers or tutors, and the experience of this type of collaborative learning at Dundee suggests that students welcome such interaction and dialogue. The early use of online discussion forums within the Post Graduate Diploma of Secondary Education was seen as a strength by both students and tutors, and of particular value whilst the students were on placement and in "distance learning mode."

While ePortfolios can facilitate exchange of ideas, the technology also gives students control over who has access to their material. Thus, for example, while it could be valuable to a student to write down very personal thoughts and feelings about their learning, they may not wish to share all the detail with others in their course or with their tutor. Similarly, a student may feel that reflections made at an early stage in their academic career are not relevant to a prospective employer after graduation. The ePortfolio technology allows students both to record their experiences and to be selective in their use of that material in a way not possible with traditional diaries or learning logs.

A major requirement to support reflective thought and, with it, reflective writing, is the opportunity for extended writing. It is this element of the ePortfolio that enables the student to address the four essential issues concerning reflection as identified by Hatton and Smith (1995):

- We should learn to frame and reframe complex or ambiguous problems, test out various interpretations, and then modify our actions consequently.
- Our thoughts should be extended and systematic by looking back upon our actions some time after they have taken place.
- Certain activities labelled as reflective, such as the use of journals or group discussions following practical experiences, are often not directed towards the solution of specific problems.
- We should consciously account for the wider historic, cultural, and political values or beliefs in framing practical problems to arrive at a solution. This is often identified as critical reflection. However, the term critical reflection, like reflection itself, appears to be used loosely, some taking it to mean no more than constructive self-criticism of one's actions with a view to improvement.

Using an ePortfolio as the basis for reflection provides a structured opportunity to take stock of personal development, accounted for O'Connell, C. (2003). The development of recording achievement in higher education: Models, methods and issues in evaluation. In D. Gosling (Ed.), *Personal development planning*. Birmingham, UK: SEDA.

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KEY TERMS

Autonomous Learner: One who solves problems or develops new ideas through a combination of divergent and convergent thinking, and functions with minimal external guidance whilst learning.

Bespoke: Custom made, developed for a specific purpose or application

Content Management System: A computer application that stores and organises a large variety of documents allowing searching capabilities, manipulation, and control over a network.

eLearning: Relates to learning and teaching that is delivered by a combination of computer, local, and wide area networks.

Personal Development Planning (PDP): A structured and supported process undertaken by an individual to reflect upon their own learning, performance, and/or achievement, and to plan for their personal, educational, and career development.

Reflective Learning: The process by which a student critically analyses his/her acquisition of knowledge and competences.

Skills Templates: Tools that facilitate the identification and recording of student achievements.

Student-Centred Learning: Where the focus is on the knowledge and skills to be gained by the student, rather than the teacher's perception of what he/she will or has taught.

Surface and Deep Approaches: Surface approaches are concerned with simple learning strategies, such as memorising facts and so forth, whereas deep approaches are concerned with seeking to understand the issues and critically interact with the content.

Virtual Learning Environments: Web server-based applications which allow the delivery of online courses utilising a variety of functions such as Web content, discussion forums, online chat, and student monitoring.