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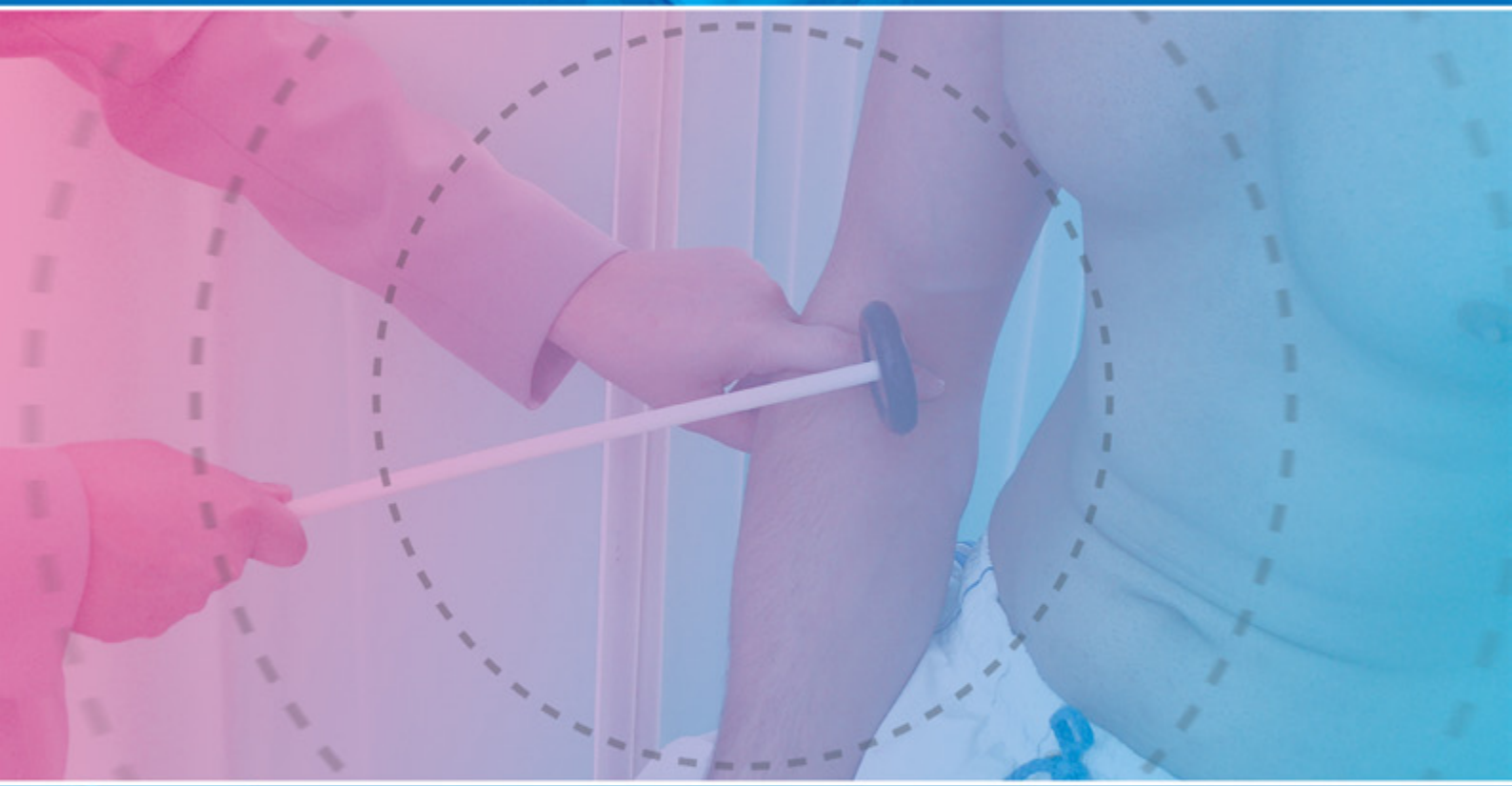

A Peer Reviewed International Journal for the Advancement of Clinical Skills

- 'docendo ac discendo' - 'by teaching and learning'

In this issue:

With proceedings from

The 8th International ePortfolio Conference

Clinical Training Associates & Pelvic Examinations
WHO 'Five Moments for Hand Hygiene'
Holistic approach to resuscitation
Cranial nerve examination

EIfEL
Building a Learning Europe

Executive Board

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Congratulations to Mr Ronak Ved of Cardiff Medical School (UK) on successfully winning The IJOCS Award 2010 - presented for creativity and excellence in the field of Clinical Skills.

The International Journal of Clinical Skills looks forward to contributing positively towards the training of all members of the healthcare profession.

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Foreword

We want raw ePortfolio data, and we want the data now

Patients trust that healthcare professionals will possess the clinical skills to provide safe and effective treatment. Serious failures of medical care, through the actions of individuals and the inaction of organisations, have shaken that trust and led to a re-examination of the process of registration. In many countries and disciplines, continued registration now depends on the documentation of continuing professional development. Some jurisdictions, such as the UK, have gone further and are planning more comprehensive evaluation of clinical performance for revalidation. In all cases, assessment is based on some form of ePortfolio.

"An e-portfolio is a purposeful aggregation of digital items – ideas, evidence, reflections, feedback etc, which 'presents' a selected audience with evidence of a person's learning and/or ability." Sutherland and Powell (2007)

Presenters in the healthcare ePortfolio track at the 8th International ePortfolio Conference, London (July 2010) described a wide range of ePortfolios being used or being developed for allied health, dental surgeons, surgeons, physicians, nurses, medical education, foundation medical graduates. ePortfolios are used by students to evidence acquisition of clinical skills for initial registration, by new graduates to collect evidence of competence for credentialing and by trained staff for evidence of consistent expert performance. As Stuart Cable from the Royal College of Nursing (UK) explained:

"[the ePortfolio] enables nurses to demonstrate their competence in different areas of nursing practice. They are able to capture 'just-in-time' reflections on their practice or a learning experience and then re-present this evidence for different purposes, for example, personal development planning, competence demonstration and educational accreditation of prior learning." (Stuart Cable, Proceedings of the ePortfolio Conference, Maastricht, 2007)

The need for repurposing the same set of collected data across time was confirmed by many of the International ePortfolio Conference presenters: as their careers develop, healthcare professionals will be required to transition across several ePortfolio systems, from those used during initial training, continuing professional development, quality assurance procedures and, at regular intervals, to support reaccreditation processes.

To support evidence of informed and reflective practice, healthcare professionals collect evidence from a variety of sources and data systems, such as patient personal health records, laboratory test analysis, clinical diaries, feedback from peers and patients. Unfortunately, all these different pieces of information are usually stored in independent information silos, making the work of ePortfolio construction and assessment more difficult, notwithstanding that silos make data errors more likely to occur and less likely to be corrected. As most individual ePortfolios also create their own data silos, it reduces the ability to share relevant and critical information across a profession to advance professional practice.

While the initial idea of repurposing ePortfolio data rests on the editing work of an individual compiling a new document, there is an alternative and more radical way of exploiting ePortfolio data: data freedom, i.e. allowing a wide range of online services to exploit raw ePortfolio data.

Imagine a world in which all data created by a healthcare professional when interacting with patients, teachers, colleagues and organisations is securely stored in a Personal Data Store (PDS), creating a 'life log'. Imagine that patients in the healthcare ecosystem have their own personal data stores and can share the contents, under their control, with the people and services they trust. Imagine a world where everyone would be able to choose any health ePortfolio services while being fully interoperable with those used by various institutions with which healthcare professionals interact.

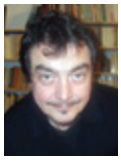
Imagine a world where the performance of students at several medical schools could be confidentially mined to identify best practice for teaching clinical skills. Imagine a service collecting data from the personal data stores of all the staff of a hospital to conduct audit procedures. Imagine another service identifying the need for training and linking it to workshops on particular topics at a conference or a review in a journal. Imagine a service mining anonymous healthcare data collected in personal data stores by a patient's support group. What Amazon® and Google® can do with their global data stores to identify patterns and trends and target advertising, we can do, with personal data stores for the benefit of healthcare, professional education, patient safety and society in general.

Such a world is possible. It was presented by ElfEL at the launch of the Internet of Subjects (www.iosf.org) during the 8th International ePortfolio Conference. The Internet of Subjects supports the programme that Sir Tim Berners-Lee, the inventor of the Internet, called for: *"we want the data raw, and we want the data now!"* To achieve that goal, which is to facilitate reuse, repurposing and exchange of data, we need to achieve the separation of data from the applications and services producing and exploiting it; applications and online services must remain the servants, not the masters, of our personal data.

In the near future institutions will not have to select the ePortfolio platform for their students or professionals; it will be an individual choice. On the other hand, educational institutions, professional communities and public healthcare authorities will have the opportunity to develop a number of innovative services, based on the exploitation of the raw data contained in personal data stores. For example, with an Internet of Subjects, data collected by students and trainees for assessment of progress or by trained staff for revalidation could be used, with permission, for other useful purposes such as quality assurance, needs analysis and career planning.

By providing access to raw data in personal data stores (anonymised and under the full control of individuals) to the services of their choice, healthcare professionals and communities would have the foundations to support the development of lively learning communities, for the benefits of their members, patients and society at large. Data collected whilst compiling an ePortfolio is too rich to be limited to a unique usage. We want raw ePortfolio data, we want it now, to contribute amongst other things, to the improvement of the continuing education of healthcare professionals.

Professor Harry Owen
Professor of Simulation and Anaesthesia
Flinders University
Australia



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Effective embedding and integration of ePortfolios in medical and dental curricula

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Abstract

The extent to which ePortfolios and Personal Development Planning (PDP) are embedded in medical and dental education curricula can be an important factor in engagement. This paper identifies different ways in which ePortfolios can be embedded and integrated with the curriculum. This draws on the wider literature and on specific case studies from undergraduate medicine and dentistry at Newcastle University (UK). We also provide early evaluation of a new approach for embedding portfolio learning within online curriculum maps. Different types of embedding and integration are identified in these case studies and most are generalizable to other contexts.

Introduction

The extent to which ePortfolios and Personal Development Planning (PDP) are embedded in the curriculum can be an important factor in engagement [1, 2]. The level of embedding and integration may help determine whether learners and teachers perceive portfolio building to be a meaningful process. This paper identifies different ways in which ePortfolios can be embedded in the curriculum, drawing on 7 years experience at Newcastle University, with specific case studies from undergraduate medicine and dentistry. We also provide early evaluation of a new approach for embedding portfolio learning within online curriculum maps.

Embedding and integration with the curriculum

The terms 'embedding' and 'integration' are not always clearly defined in relation to ePortfolios. Table 1 (next page) provides a classification of different ways in which PDP can be associated with the curriculum [3, 4]. This can be readily applied to ePortfolios and their relation to the curriculum.

A systematic literature review by Maastricht University identified robust integration into the curriculum as one of the factors in effective use of ePortfolios [2]. Assessment can be intrinsically related to embedding and integration with the curriculum. This can range from formative to summative assessment and relate to a specific part of the curriculum or be integrated with the whole programme. An example of an integrated approach would be the summative assessment of portfolios to evidence learning across an entire programme at the University of Dundee [5].

We also identified embedding with the curriculum as being important to student engagement with ePortfolios in our EPICS-2 project [6]. Other factors influencing engagement in pilots for EPICS-2 (including staff regularly referring to ePortfolio, the mention of ePortfolio in curriculum documentation, and clarity of purpose) were also related to 'embedding' within the curriculum.

Table 1: Different ways in which PDP can be associated with curricular activities (adapted from Aspect (2010) [3] and Atlay (2009) [4])

Type	Description	Key advantages and disadvantages
Discrete ('bolt on')	Students are provided with opportunities to engage in PDP and encouraged to take them. These are optional and additional to the curriculum.	Simplicity and low resourcing are the main advantages, with lack of student engagement being the main risk.
Linked	PDP is run in parallel with the curriculum but is linked to it, so that there is an explicit and supported relationship between the two.	The advantage is that the student experience is more controlled, with minimal disruption of the standard curriculum, but lack of student engagement remains a risk.
Embedded	Appearing within specific activities or modules within a programme. These may provide the main support for PDP with a focus on skills and/or a subject focus. They may link with material studied in other modules.	The main advantage is greater control over the student experience, but a risk is that this is fragmented.
Integrated	Fully integrated throughout the curriculum, PDP appears in most, if not all, modules in a programme. Reflective approaches underpin the delivery of the curriculum and the ePortfolio becomes a record of learners' curriculum activities.	The advantage is that PDP becomes an integrated part of student and staff thinking, but there are difficulties in persuading all staff to carry this out and a risk that PDP loses 'visibility'.
Extended	PDP is used to integrate activities both within and outside the curriculum. I.e. consciously serves to provide the link between the academic curriculum and wider life experiences.	This approach draws together study, work and other experiences, but outcomes may be unpredictable

Case Study: Embedding ePortfolios in Medicine

ePortfolios were first piloted in undergraduate medicine at Newcastle University in 2002 [7]. This was in response to curriculum and policy requirements to develop 'reflective practitioners' with the skills and attitudes required for the regular appraisals, assessments and revalidation that are part of professional practice. It took several years for ePortfolios to 'find their place' within the curriculum. They are now 'embedded', being used to support annual appraisals in which students use ePortfolios to evidence a number of 'high level' skills (Figure 1). The evidence summaries from the ePortfolio inform part of a face-to-face appraisal session [8]. Students can include non-academic achievements in their evidence in areas such as creativity, team working and leadership – supporting an extended 'life-wide' perspective.

The ePortfolio is also used for summative assessment in student selected components (SSC) in which the portfolio is used to plan, monitor and reflect on achievement of objectives during the SSC (Figure 2). ePortfolios are referred to within Study Guides and other curriculum documents and the software is integrated within the virtual learning environment used by the programme.

Initial evaluation indicated that students found the process useful and it was complimentary, rather than separate to the relationship with SSC supervisors [9].

Case Study: ePortfolios at the point of learning in Dentistry

In undergraduate Dentistry students perform clinical procedures on a day to day basis in multi-chair clinics at the Dental Hospital and in smaller clinics across Newcastle (UK). Wireless devices (laptops, PDAs and smart phones) are used to access ePortfolios in clinics and students record procedures, complete self-assessment and receive assessment and feedback from supervisors [10, 11]. As such the ePortfolio is integrated in day-to-day practice and directly relates to the dental curriculum and assessment. The process provides immediate and contextual formative assessment and feedback. Additional reflections can be added later via the Web-based ePortfolio.

The ePortfolio was successfully piloted in two clinical areas with Stage 3 dental undergraduates during the 2006/7 academic year, when over 3,000 patient visits were recorded in the system. In 2007/2008 the portfolio was expanded to 6 clinical areas and Stage 3 and 4 students (174) with gradual roll-out to all clinical years (256 students). It is now integrated into the day-to-day activity of clinical year students and their teachers, with over a million data points collected each year.

Case Study: Dynamic Learning Maps

Dynamic Learning Maps is a 'Joint Information Systems Committee' (JISC) funded project in which we are developing navigable curriculum maps, which include facilities for learners to add notes, reflections and upload files against particular topics within their maps [12, 13]. This is integrated with the students' ePortfolios and provides a novel approach for embedding reflection and portfolio learning directly linked to teaching sessions, cases, learning outcomes and other aspects of the curriculum (Figure 4). The student's personal information is stored in their ePortfolio and as such can support evidencing for appraisals, other portfolio-related pedagogy, and can be exported as part of a life-long learning record using national and international interoperability standards. The Dynamic Learning Maps (DLM) communicates with the ePortfolio using the 'Leap2A' specification [14].

Figure 1: MB BS portfolio and 'My Evidence' section and 'Summary of Evidence' for a specific skill

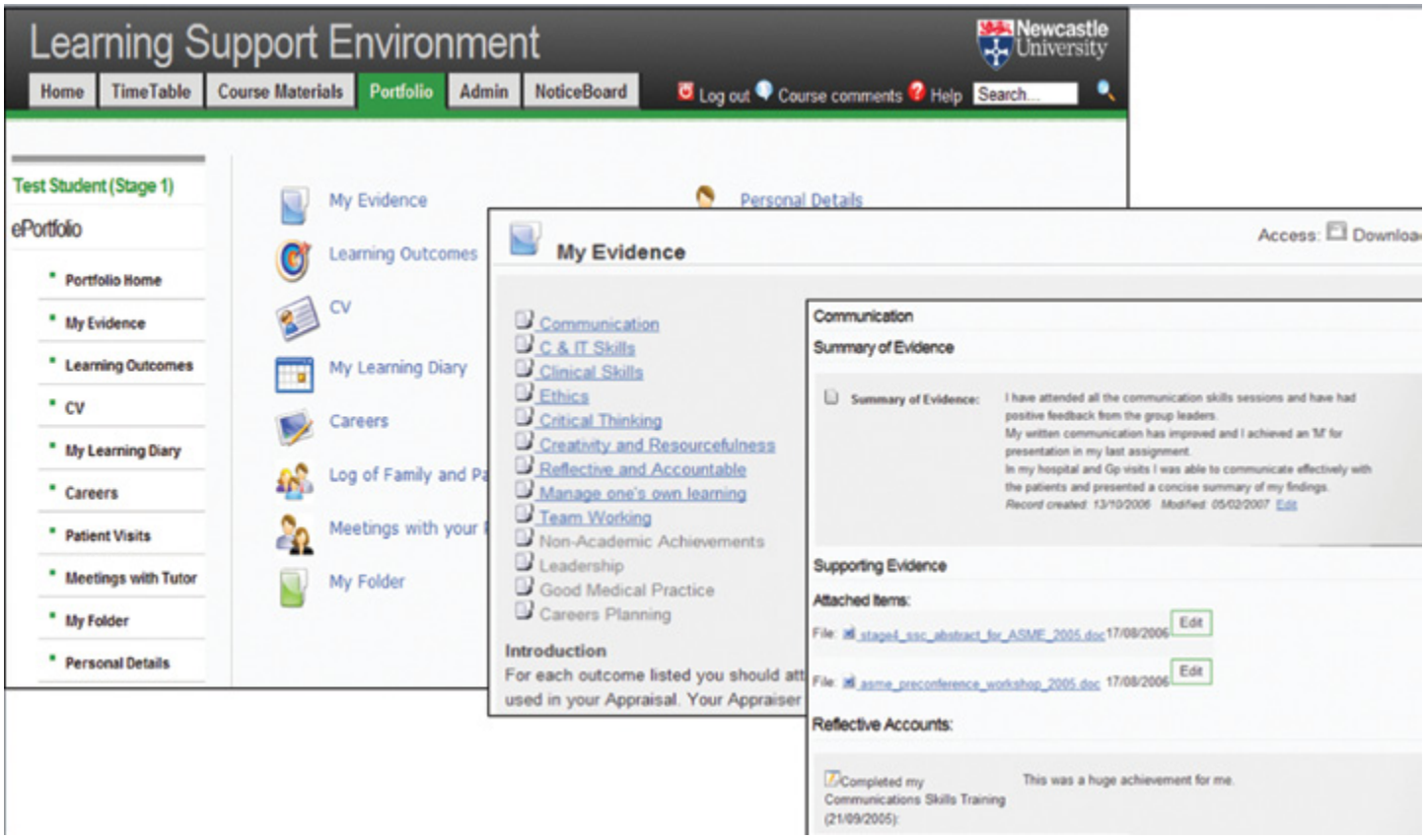


Figure 2: Partial listing of the SSC portfolio and representative qualitative feedback from 2006

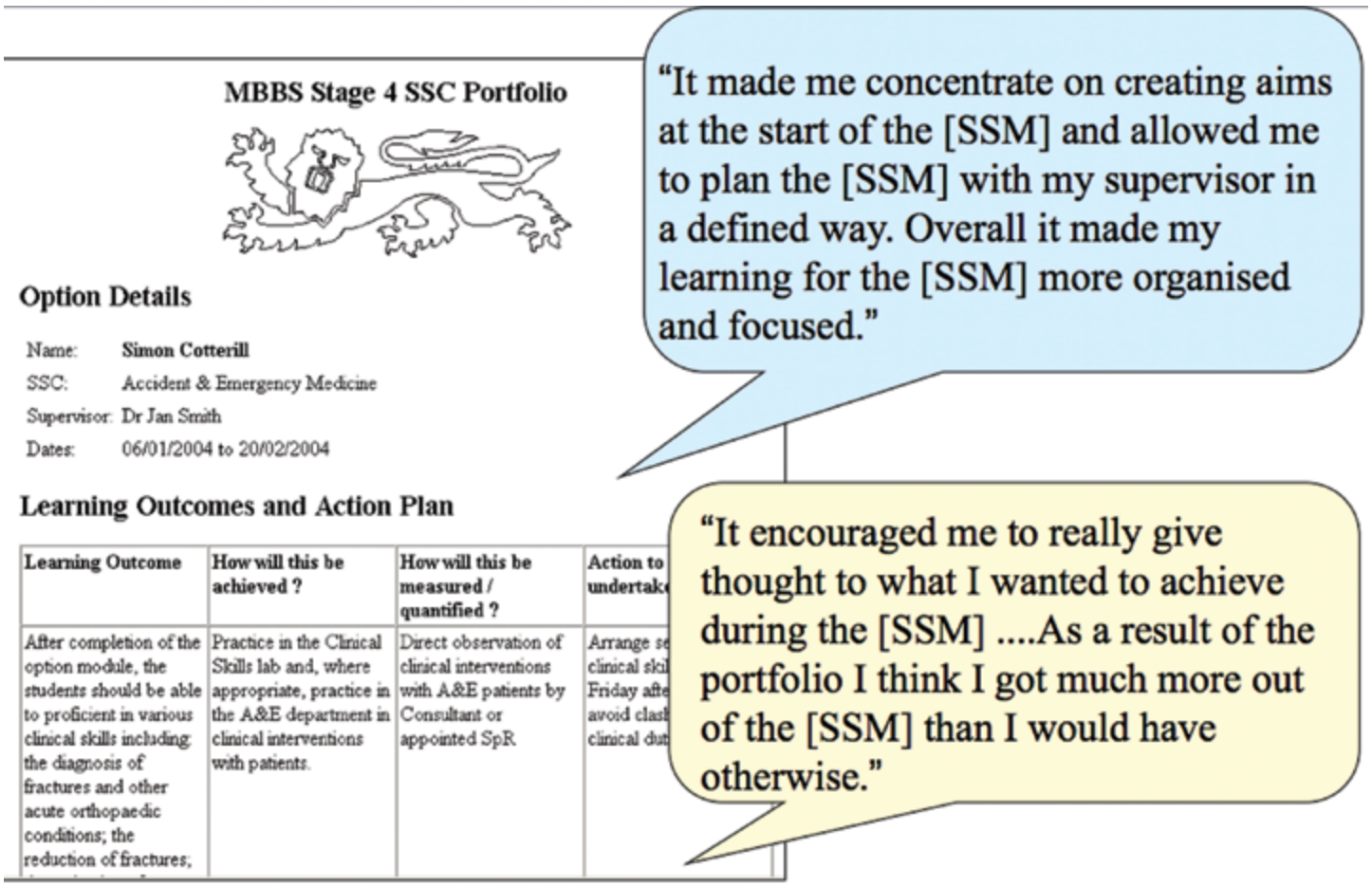
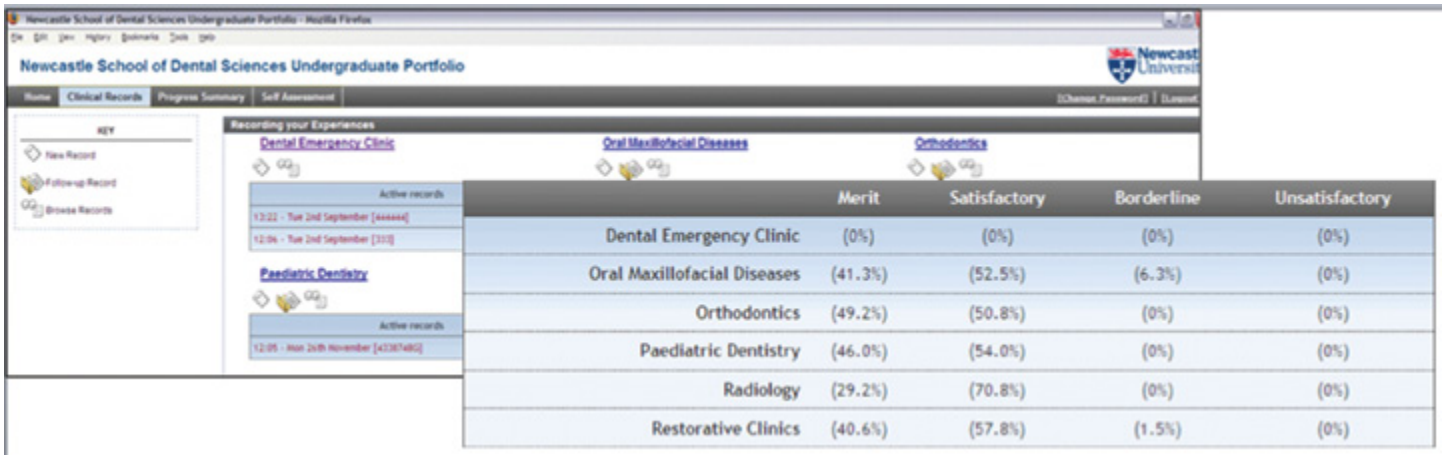
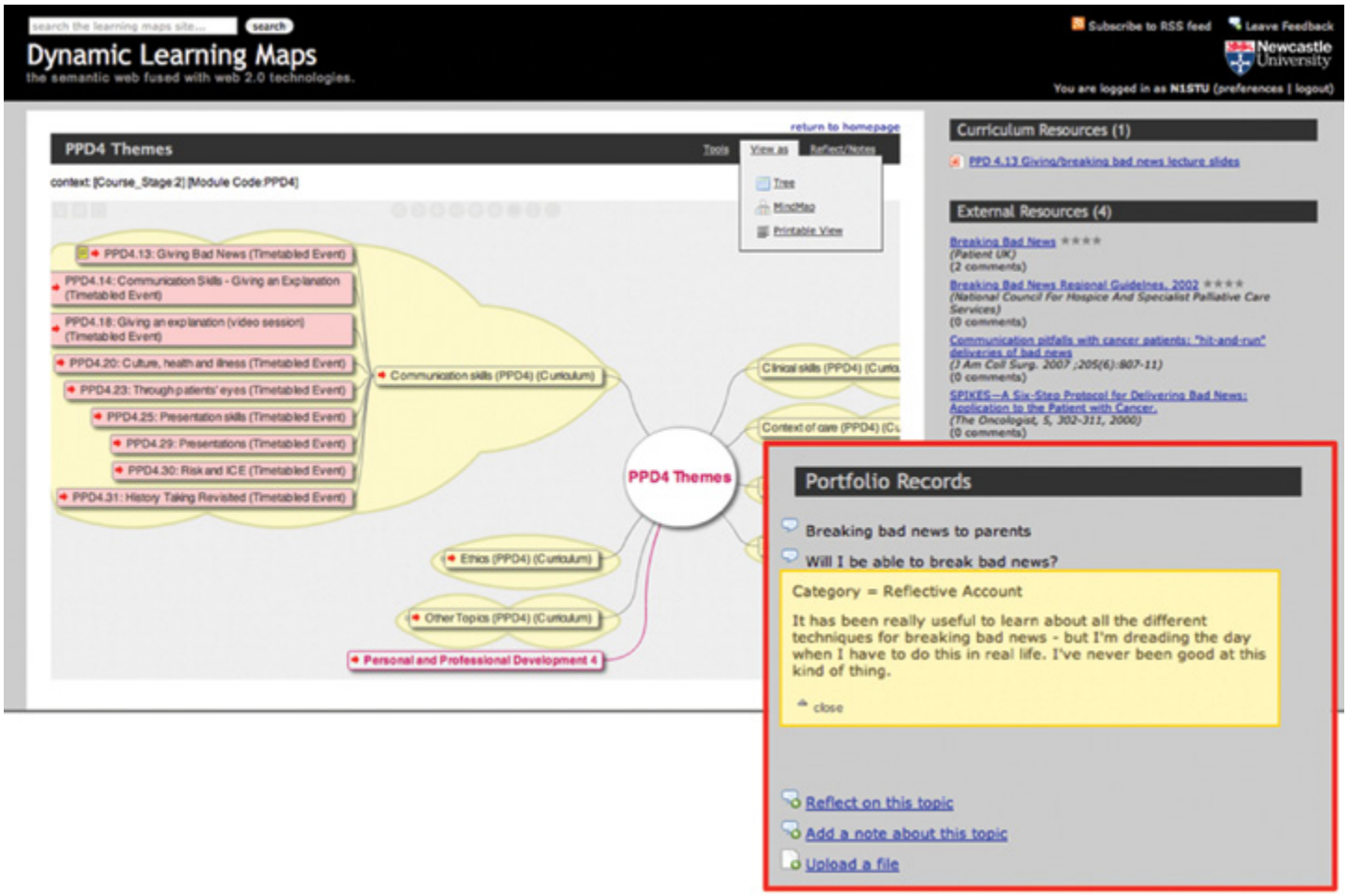


Figure 3: Dental portfolio and clinical logbook – insert showing summary of a student's grades by specialty



	Merit	Satisfactory	Borderline	Unsatisfactory
Dental Emergency Clinic	(0%)	(0%)	(0%)	(0%)
Oral Maxillofacial Diseases	(41.3%)	(52.5%)	(6.3%)	(0%)
Orthodontics	(49.2%)	(50.8%)	(0%)	(0%)
Paediatric Dentistry	(46.0%)	(54.0%)	(0%)	(0%)
Radiology	(29.2%)	(70.8%)	(0%)	(0%)
Restorative Clinics	(40.6%)	(57.8%)	(1.5%)	(0%)

Figure 4: Notes and reflections can be added to any topic in the map



Piloting with medical students began in February 2010 following focus groups and other formative evaluation. Initially, 193 Stage 1 and 2 medical students were given a short demonstration of DLM and 78% thought that the map would be useful for reviewing and reflecting after a session. 69% thought it would be useful to add notes and reflections to teaching sessions and other parts of the map. At the time of writing, further evaluation is ongoing with pilots in Medicine, Psychology and Speech and Language Sciences.

Discussion

The case studies here illustrate a number of different dimensions for embedding and integration with the curriculum:

- Directly relates to the 'core' curriculum or specific components of it
- Explicit support for learning outcomes defined in the curriculum
- Embedded in summative assessment
- Supporting formative assessment processes (e.g. appraisals)
- Used at the point of learning (e.g. wireless access in clinics)
- Included in study guides and course documentation
- Uses the language and terminology of the curriculum
- Embedded / integrated with the managed / virtual learning environment
- Novel embedding of portfolios in a curriculum map (Dynamic Learning Maps)

Indicators of embedding include good levels of uptake and engagement, and regularly being referred to by teaching staff.

This level of embedding and integration has been achieved over a long time frame. As noted elsewhere it can take time, lots of usage and numerous adjustments in response to feedback in order to achieve a 'good fit' to the curriculum [15]. Buy-in by curriculum and teaching staff is essential [16]. Use of portfolios to support assessment is itself a form of embedding in the curriculum and a powerful motivating factor. However, there needs to be careful consideration of the tensions between summative assessment and reflection [17].

Of course every context differs and there are many other ways in which portfolios can be embedded and integrated into the curriculum. The cases here are non-modular programmes in medicine and dentistry. Some of the approaches can be applied in modular programmes, for example, Dynamic Learning Maps is also being piloted in modular programmes. Also, there are a wide spectrum of types of portfolios. For example, these may range from unstructured, presentational to structured and assessment-driven. The cases here use relatively structured portfolios, with their structure being directly related to the curriculum. However, too much structure can potentially reduce engagement [2].

Conclusion

Embedding in the curriculum is a key factor in engagement and effective use of ePortfolios. There are a number of ways in which ePortfolios can be embedded in the curriculum and a wide range of ways they can be used to support formative and summative assessment. Here we provide examples of embedding and integrating ePortfolios in medical and dental curricula. This includes embedding in appraisal processes, summative assessment of Student Selected Components, assessment at the point of learning and early evaluation of embedding portfolio learning within Dynamic Learning Maps.

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