

EPortfolio 2003

Abstracts and Presentations

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EPortfolio 2003

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Introduction

Welcome to ePortfolio 2003, the first international conference entirely dedicated to an innovative knowledge, information and learning technology: the ePortfolio.

This conference comes just at the right time:

- § ePortfolio and ePortfolio related initiatives are one of the fastest growing uses of technology in education and training today
- § ePortfolio and ePortfolio related initiatives are not yet coordinated or interoperable

The growth of ePortfolios and ePortfolio-related initiatives responds to many needs:

- § providing truly individualised learning and assessment through learner-centric technologies
- § structuring lifelong and life wide learning and continuing professional development
- § providing access to flexible accreditation schemes for those in search of recognition of their experience and prior learning

ePortfolios don't come from nowhere! ePortfolio technologies and practice are based on very sound foundations:

- § information and learning technologies have largely demonstrated their potential to support innovation in education and training
- § decades of use of paper-based portfolios by millions of people throughout the world have shown that the portfolio can be a tool for providing a more inclusive access to learning and qualifications

Today's ePortfolios take many different forms and the services provided by ePortfolio vary

- § from 'extended' multimedia résumés on CD-ROM or online to inter-networked, personal knowledge management toolboxes
- § from an individual collection of learning outcomes to national infrastructures to provide flexible access to development and qualifications
- § from client-server based applications to peer-to-peer networks

What we would like to explore in the future:

- § ePortfolios as the foundations for learning communities
- § ePortfolios as the elementary bricks of knowledge management systems
- § ePortfolios as a link between individual, organisational, territorial and societal learning

We expect that this conference will help us to

- § recognise and accept the different approaches to ePortfolios practices
- § agree on shared values that should be underlying ePortfolio technologies and practices
- § agree on the need for establishing flexible technical standards supporting the interoperability of ePortfolios with different levels of services – from 'extended résumé' presentation (on or off-line) to interaction with HR or professional bodies CPD systems.

In this pack you will find a selection of papers and PowerPoint presentations provided by ePortfolio 2003 speakers and participants. The contributions give an idea of the power and range of the ePortfolio for individual learning and self-development, as well as its capacity to make a major contribution to organisational learning and regional and national policy and strategy. We can see how the ePortfolio can be adopted in school, accompany us through higher or vocational education and become an integral part of our continuing professional development and lifelong learning.

Maureen Layte & Serge Ravet

Some definitions

Portfolio — a personal collection of information describing and documenting a person's achievements and learning. There is a variety of portfolios ranging from 'learning logs' to extended collections of achievement evidence. Portfolios are used for many different purposes such as accreditation of prior experience, job search, continuing professional development, certification of competences. Tens of millions of people across the world have already used some kind of portfolio.

ePortfolio — 1: a portfolio using electronic media and services; 2: A personal digital record containing information such as personal profile and collection of achievements; 3: ubiquitous, portable, electronic knowledge databases that are private, personalised and shareable, and are easily accessible via the web (Stanford University Learning Lab).

An ePortfolio can be a combination of mixed media and services (e.g. a 'traditional' portfolio combined with online services for assessment). An ePortfolio can be either off-line (e.g. smart card, DVD) or on-line (e.g. personal profile repository), or a combination of both. ePortfolios can be either stand-alone media or interlinked through peer-to-peer services. Whatever the format, an ePortfolio is owned by one person, and one person only, who has complete control over its content and access. What gives ePortfolios the edge over 'traditional' portfolios is the considerable increase in the number and quality of services that can be provided to individuals and the community. In order to make these services widely accessible, ePortfolios must comply with interoperability standards.

ePortfolio services — services provided on the basis of the information stored in a personal record. Services range from assessment support (tracking individual achievements), to orientation, evaluation, validation, course finding and registration, adaptative pedagogy, job-hunting, continuing professional development, community building, etc. Services can be provided by learning management systems, human resource information systems, employment agencies information systems, professional portals, etc. Services can be centralised or distributed on a peer-to-peer model.

ePortfolio standards — ePortfolio standards cover a wide range of issues such as document format (e.g. pdf, html, xml, etc.), accessibility (e.g. WAI), data format (e.g. learner profile), authentication (e.g. certificates), access right, etc. IMS specification such as LIP (Learner Information Profile) and content packaging, are some of the elements that could be included in future ePortfolio standards.

Elisabeth Agerbæk, Odense Technical College, Denmark – *Global portfolio in Relation to Student Exchange Programmes*

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Background or context

The various mobility- and exchange programs between colleges have been and will be a great platform for giving students a global experience. The exchange-programs will in the coming years be established in a virtual or a semi virtual context where the student will be connected to foreign study-programs or to companies only partly by being present.

The success of the various programs has – at least for the Danish partners – to a large extent been depending on the fact that the study programs has been described within the European Credit Transfer System (ECTS). The ECTS-system offers a simple transfer system that gives guidelines for exchange programs (level of study) – and the student could adjust the objectives and their goals, discuss learning style and special interests by being present at the foreign College.

The virtual environment for learning can still rely on the (ECTS-system) for stipulating the level of study – but what is needed in the virtual exchange context is a “media”, a common ground for stipulating specific objectives and goals. The common ground between student and “exchange” College is not mediated by physical presence but must be established by virtual presence.

The virtual presence

- § visualizes the students learning style
- § states the specific learning objectives and goals for the exchange program
- § stress the output of the exchange program

Objectives

The main objective has been creating and initiating a dialogue leading to the creation of a web-based tool which carry consensus on learning objectives and styles of delivery between student and “exchange” college in the context of virtual or semi virtual exchange programs.

Within the field of ICT (the studies: Market Economist, Multimedia Designer and IT and Electronics) an application web server has been established and it has been used for about a year. It offers

- § a web-based platform for a learning portfolio that gives the student the possibility to expose learning objectives and reflect on own past learning
- § a platform gives the student facilities to reflect critically on own learning and learning styles

- š a dialogue forum that the student can use in a virtual exchange program to target learning objectives – dialogue through net meetings, mail, chat etc.
- š recording of portfolio content
 - o *self assessment (peer assessment, tutorial-feedback. 360 degree assesment through a specially designed tool that visualises the assesment etc)*
 - o *recording and assessing work, study and learning experience*
 - o *designing competence profiles*
 - o *content management within a portfolio*

The tool has been subject to beta testing through student exchange programs for the college.

Summary of results

Portfolio technology might be one thing – the organization around the portfolio as tool for reflexion, accreditation or self-assessment is a completely different. We have learned that the tool itself is only half of the way. To have the tool used is quite another thing relating to

- the "modesty" of many participants who are reluctant to publish "personal stuff" on the net
- the difficulties in making the teachers use the system because of lack of ITC abilities
- the problems getting the managerial level to prioritize the tool in terms of paying for the teacher's effort
- the frequent experience that people see this as a Curriculum Vitae and nothing else. This means that they generally only wish to publish things they have done or have finished. To see the platform as a means of development is difficult.

Conclusions and recommendations

The process of developing an e-portfolio has to be a continuous process of involving teachers and students in a dialogue on aims and technologies – and specifically focus on questions of the use of portfolio content.

Elisabeth Agerbæk

<http://www.multimediedesigner.ots.dk/users/Lise%20Agerbaek>

Jane Arscott, Athabasca University – *To 'e or Not to 'e?*

Contribution submitted to ePortfolio 2003 The First International Conference on the Digital Portfolio sponsored by the European Institute of eLearning, October 9-10, Poitiers, France. Presented by Dr. Jane Arscott, Athabasca University, Athabasca Alberta Canada (janea@athabascau.ca).

Political and Economic Context

The federal government of Canada adopted its Innovation Strategy for Canadians to participate more effectively in the knowledge economy by nurturing a more educated and qualified workforce (<http://www.innovationstrategy.gc.ca>, 2003). The departments of Industry and Human Resources are collaborating to produce improved employment opportunities for adult Canadians by encouraging the adoption of Prior Learning Assessment and Recognition (PLAR). In a recent competition a project created by my colleague and me has been selected to receive funding under a PLAR Initiative sponsored by Human Resources Canada. Before relating the objectives of the project, I want first to say something about 1) the context in which education and training occurs in Canada and 2) the lead institution that will carry it out.

Educational Context

In Canada post-secondary education is an area of provincial responsibility. Canada has a system of publicly funded colleges and universities that provide most of the post-secondary education in the human services sector. This sector is comprised of workers educated in college programs of one or two-years of full-time study in fields such as Early Childhood Education, Teacher Assistant, Child and Youth Care Work, Rehabilitation Services/Developmental Services Worker and Social Services Worker. When the college system was originally created in the 1960s these programs were regarded as purely vocational and had little to no possibility of transferring to university-level study. Practitioners often had to begin their studies again from scratch at great cost to themselves and to the educational system. In the last five years more transfer credits have been awarded than before but not generally in a systematic or system-wide manner. In consequence, a patchwork effect continues to exist resulting in practitioners having widely different opportunities to continue their education without penalty depending on where they live in the country and what credential they hold.

Athabasca University located in Athabasca Alberta is Canada's premier on-line and distance education university. Created in 1970 initially it served underserved subpopulations especially in Northern Alberta. Its student body was comprised primarily of women many of whom lived in rural locations and some of whom were aboriginal. Since that time the university has extended its service area to all of Canada and beyond. Despite a trend to more urban students, 66% of our students continue to be women (<http://www.athabascau.ca/media/facts>). There continues to be unmet need for small numbers of isolated learners in the mid-North and the far North.

Alberta's Department of Learning accredited the university to provide degree-completion opportunities to college diploma holders in 1996 by introducing the Bachelor of Professional Arts. Since then the post-secondary system has created other college-to-university links such as university colleges in British Columbia and applied degrees granted by some colleges in Ontario and Alberta. The Human Services major was created in 1999 to respond to this unmet need (<http://athabasca.ca/humanservices>). The human services major in the Bachelor of Professional Arts degree at Athabasca University provides cutting-edge leadership in learning accreditation. It offers block credit transfer in seven provinces and 2 territories as well as consistent and reliable transfer credit to human services' credential holders. In addition the human services program provides the most extensive opportunities for PLAR using portfolio assessment anywhere in the country and perhaps beyond (<http://pathways.athabasca.ca>).

Our Project

The Pan-Canadian Gateways Project: Accreditation and Recognition of Learning for Adult Practitioners In the Human Services will incorporate Prior Learning Assessment and Recognition to demonstrate its value as an integral part of post-secondary credential completion and outcome-based employment eligibility. The project will first develop PLAR tools that award academic credit at the post-secondary level for demonstrated learnings at an entry, diploma, advanced and degree completion level and then test, and implement the tools. A minimum of 100 practitioners will complete the process. The project will communicate its activities to a range of employers, professional associations, colleges and universities to broaden the use, acceptance and recognition of these awards. Participants' success in achieving their educational and employment goals will be tracked and measured to evaluate the success of the project. The project will take place over the next three years.

Will Gateways incorporate ePortfolio into our research design and, if so, how extensively and where would it best be used? The mandate of the university sponsoring the Gateways project dedicates Canada's Open University to "the removal of barriers that restrict access to, and success in, university-level studies and to increasing equality of educational opportunity for adult learners worldwide." In order wholeheartedly to adopt ePortfolio we would need strong evidence that it responds effectively to the guiding principles of the sponsoring institution. Consider first the objectives of the project we are undertaking.

Objectives

- Collaborate with partners: at least 5 colleges, at least two universities in addition to Athabasca University, at least two government departments or agencies, two or more professional association and at least six employers to develop PLAR tools and implement a PLAR process
- In collaboration with partners develop valid/reliable, effective and easy to use PLAR tools, including resources and supports
- In collaboration with partners implement PLAR tools
- Evaluate employment and educational success of PLAR participants
- Statistically measure and analyze success in relation to PLAR outcomes, and employment and educational goals
- Communicate objectives and outcomes to partners, employers and educators in the human services field.
- Publicize results through conference presentations, publications and website

Possible Future Results

- Development of ePortfolio tools
- Successful implementation by sponsoring institution as well as by our college and university partners
- Outcomes measurable over time
- Strengthening relationships among colleges and universities in the field of Human Services Education
- Broadening and deepening the understanding and acceptance of PLAR in sub-national educational jurisdictions across Canada
- Contributing to the creation of a more seamless post-secondary degree completion opportunity for adult Canadians

- Creation of a network of networks that contributes effectively to a self-definition of the human services sector in Canada

The use of ePortfolio as one of the tools to be developed is strong, at least as an option for the senior-level content to assess the third and fourth year of learning in baccalaureate studies. Even so, we are unlikely to use it to the exclusion of "paper and pencil" options and adaptations that do not use electronic technology at all.

From our experience with portfolio assessment to date we know that some of our participants would be eager and able to perform well using a technological tool. Others probably would not be in a position to demonstrate their learnings to their best advantage if they were not offered other options. For example, for some of our prospective participants technology is a barrier because their communities as yet make little use of computers, and their internet connections are unstable even non-existent, or their access to electronic learning tools and supporting infrastructure is already antiquated. Even if ePortfolio offered the best potential for success, it would not be accessible where they live. Second, some of our prospective participants will participate successfully only if we are able to provide culturally sensitive methods of drawing out the required information. It might be the case that our PLAR tools will have to be sufficiently flexible to be administered by a coach or mentor who speaks Inuktitut or Cree and who provides a preceptor-like affirmation of the skills and competencies the participant has. Third, it may be that in some communities portfolio assessment will be a collective and collaborative exercise in community building and networking rather than a stand-alone activity of individuals. This prospect raises other questions about what and who receives credit and the question of whether a particular individual has to own the learning or whether it can be ascribed collectively to a group.

Conclusion

We would welcome the sharing of ideas and experiences you may have had in overcoming the limitations that I have mentioned, or in adapting ePortfolio to meet the needs of learners who are less than ideally suited to perform optimally using only ePortfolio. What supports need to be in place to ensure that ePortfolio produces the best possible results for the broadest range of learners?

Because we are only at the planning stage for our project we are open to all manner of suggestions about how best to achieve the project's objectives, which new best practices to adopt, and how to ensure equitable opportunities for all learners, not only in Canada but worldwide. This is our challenge. We know the question, although the answer will take some time in coming.

"To 'e or not to 'e?"

By this time next year we will have committed ourselves to it or not. "Until then, we wait to 'e."



**Keith Brosnan, Aotea Interactive Media –
*How e-Portfolio delivers the benefits of Online
Assessment - Implementing ePortfolio at
INHOLLAND University***

A brief discussion of the applications of e-Portfolio in Assessment

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Introduction:

An e-Portfolio provides a new forum for connecting students and teachers, with the learning achievements they seek to attain.

In its most simple guise it is a record of a candidates performance held online. A digital performance report which can be used as an online CV or as a feedback tool between teachers and students.

However once you begin to scratch the surface of the capabilities of the new medium, it becomes clear that the e-Portfolio holds the key to much more than this.

This paper looks at how e-Portfolio's can be used to create opportunities for new learning initiatives based on assessment and how in the future we might use e-Portfolios as an integral and widely accepted part of the learning process.

Objectives:

In the following sections we will examine:

- § The relationship between Online assessment and e-Portfolio
- § The capabilities of e-Portfolio
- § New learning opportunities based on e-Portfolio
- § A broad vision for e-Portfolio and Assessment.

e-Portfolio and Assessment:

We began investigating the applications of e-Portfolio to Online Assessment over four years ago, while developing early versions of our Online Assessment software (LAMP).

At that time, we determined that once all normal stages of the assessment cycle were completed, it would be desirable to output results to students over the same secure online system, both to increase the speed of the overall process and to guarantee the accuracy of the results output.

In the simplest terms, what we were trying to achieve was a direct communication of results via the Internet.

It became clear that this Results Output was best represented as a student Portfolio, and that not only was this Portfolio useful for communicating results directly, it was also an ideal forum to communicate other information, such as feedback from the assessment, further learning directives, and student performance statistics.¹

Equally important was the realization that an e-Portfolio system that is part of a greater Online Assessment system, could easily record and store not only results, but whole assessment papers with integrated feedback, and infinite numbers of these can be stored indefinitely.

Now we are observing that the increasing affordability of data storage solutions means there is no limit to the capacity of the e-Portfolio. Whereas once we had considered it a convenient method to communicate results, we are now able to conceive of storing every piece of student assessment data online over their entire learning lifetime.

We found this unique storage capacity of the e-Portfolio opened the door to a host of new concepts for how we communicate student achievement, and new opportunities for a more open and directed approach to learning.

Capabilities:

An Online Assessment solution offers many advantages over traditional assessment solutions and an integrated e-Portfolio system can be conceived as the final stage of the process that ultimately delivers these advantages.

The following are some of the benefits of an integrated e-Portfolio system²:

- Fast and accurate results output
- Ability to store whole completed assessments indefinitely
- Integrated feedback from markers/teachers
- Directed learning based on results and feedback
- Student performance statistics
- Online CV/ Resume generation
- Secure third party access to results

We also discovered that having the whole catalogue of a students achievements online made it possible to create a functional interface whereby students choose what details to show to third parties via the system in the form of an online CV.

Our research has shown us that the opportunities for e-Portfolios move far beyond this and the following are two examples of how much more they have to offer.

¹ The e-Portfolio is also useful for calculating and generating these statistics.

² All are currently integrated features of the LAMP system.

New Learning Opportunities:

Targeted/Directed Learning

The information we gather from exam results and marker/teacher feedback, provide extremely useful guidelines for recommending further learning.

By incorporating this into the e-Portfolio section of an Online Assessment system, we can use the information to provide targeted learning to students.

This allows us to identify weaknesses and strengths and provide Learning Direction which recommends areas for further study, relevant course material and even further training courses, which can increase benefits to students and opens the door for educators to offer further and advanced learning courses in targeted areas.

This can be developed into a fully automated system that analyses the information in the Portfolio and builds tailored learning packages to individual students. In this way we can balance the learning standard of a class or student group, allowing each student to identify and focus on their weaknesses and equally offering complimentary material to those areas in which a student shows an aptitude.

This is an extremely useful solution for students, educators and content providers alike.

Conceivably it allows us to create learning courses with less rigid structures that can be driven by the students' preferences and aptitude as they progress through the course.

Achievement Archiving

Up until recently we had looked at the e-Portfolio as a forum that focused primarily on results and assessments, and how we could use the Internet medium to best convey these.

We created an Online CV system that gave students the ability to create their own CVs based on the results and assessments stored on the system, which they may want to pass on in the form of a 'website link' to third parties such as employers, university admissions boards or immigration offices, to verify their results are genuine.

This is a far more secure method of verifying results by third parties, than the traditional photocopy of certificates, or letters of reference. As such it adds to the integrity of the qualification that is awarded and has promising implications for previously contentious issues such as the international recognition of these qualifications.

However, the real benefits of the Online CV are still to come. With the affordability of digital storage capacity it is possible for a students e-Portfolio to contain not only their results and assessments over their entire learning life cycle, but also digital copies of all assignments and other submissions as well.

These assignments can even take the form of digital video data, which could show a student making a presentation, chairing a meeting, performing a lab experiment and so on.

In fact it is possible with today's technology to record every submission a student makes during the term of their course and catalogue these within the students e-Portfolio.

This data can be drawn on at any time to prove or examine a student's capabilities in a selected field.

An example of this capability in practice would be when a prospective employer visits a student's e-Portfolio online and finds a digital video of that student presenting to the class.

This available data may prove even more useful to that employer in determining prospects' abilities, when compared with the typical CV as we know it today.

Conclusions: A broad vision

An e-Portfolio pulls together many of the benefits of Online Assessment and learning practices, giving students greater control over their learning future, and makes the process more transparent to the outside observer.

With such wide reaching applications, e-Portfolio technology has the potential to fundamentally change the way in which we offer and conduct learning to obtain qualifications and how these qualifications are received in the world at large.

In relation to assessment, it opens the door wide to new interpretations of learning achievements and allows us to move further beyond the constraints of using exams and results to prove ability.

In the not to distant future we could see e-Portfolios accepted in society at large as an integral part of the education process, and as a record of personal achievement in much the same way we value qualifications themselves.

LAMP has been developed by AOTEA Interactive Media, NZ, in conjunction with NCC Education, UK.

Stuart Cable, Royal College of Nursing – *Implementing the Continuing Professional Development ePortfolio*

Introduction

This paper sets out to examine the role of the ePortfolio in delivering on a continuing professional development (CPD) agenda. It examines in detail the approach adopted by the Royal College of Nursing, a professional organisation and trade union, using an online learning platform incorporating an ePortfolio resource. The discussion will explore the organisational rationale for the approach adopted, the professional requirements of nurses, the pedagogical approach and the developing solution, the RCN Learning Zone. Transferable lessons for continuing professional development of other professions will be discussed.

The Cultural Context

One of the over-riding demands on modern healthcare education is the preparation of practitioners who are competent in their current role but have the capacity to learn, reflect and transfer their knowledge and skills to new and different social and occupational challenges. A number of changes are occurring that may influence the way professional organisations support the development of members. Some of these include:

- Accelerating pace of change in many dimensions of life
- Growing importance of communications and information technology
- Demand for evidence of professional competence
- Public protection and increasing litigation
- Emergence of new agendas including equality
- Development of political and professional participation
- A growth in social exclusion

Policy and educational strategies for delivering on these requirements is moving increasingly from classroom-focused, educator-driven approaches to teaching and learning to a concept of lifelong learning, with such goals as increasing personal fulfilment, enterprise, employability and adaptability, active citizenship and social inclusion (Scottish Executive 2003). Concurrent with this policy shift is the unstoppable emergence of learning technologies that are creating new opportunities for learning that increase accessibility and flexibility in learning support and provision (Department of Health 2001). The two developments are therefore emerging together but have we paused to consider whether e-learning and in particular an e-portfolios can help in delivering on a CPD agenda.

The Organisational Challenge

The Royal College of Nursing is an organisation who offers professional and learning support to its 360,000 members based across the United Kingdom and overseas. It has a commitment to developing nursing and as such its learning strategies may provide a tool for recruitment and retention of a nursing workforce (Kenworthy and Dearnley 2001) and build an adaptive profession fit for future healthcare provision. Nurses who are have the capacity to learn supported by accessible learning resources offer a way that both service and profession can continue to develop (Maslin-Prothero 1997). The best methods for supporting this development using new technologies however remains unclear due to a limited evaluation of the medium and its pedagogical applications.

The RCN membership encompasses a wide range of development need; from professors of nursing to the vocationally qualified health care assistants, from the city-based hospital nurses to the single handed island based nurses and from the technophobes to technophiles. Whilst this diversity created a challenge this profile is perhaps not too radically different from many professional organisations who are required to support learning, raise the competence of its membership/ profession and ensure the safety of the recipients of the professional services.

Professions and 'Portfolios'

Within the UK a wide range of professional groups from teachers, to doctors to human resource managers to nurse are all adopting portfolios for a range of purposes. Rather than the portfolio being seen as a medium for simply recording achievements it is in some sectors considered as 'a catalyst for growth by not only providing evidence of the product of the students' [professionals] accomplishments but also of the actual process of developing a portfolio.' (McMullan et al 2003). The process can develop awareness of the professional's skills, strengths and limitations and hence indicate developmental needs.

The Professional Demand

There are a number of demands that are placed upon professionals. These are perhaps best encapsulated under the three areas outlined below:

- Fitness for purpose – required by employer
- Fitness for practice – required by profession
- Fitness for award – required by training institutions

These all have differing demands and as Storey (2002) argues can result in duplication of effort on the part of the practitioner. However Storey maintains that because portfolios are, or at least should be a dynamic and flexible tool they can be used to demonstrate different competences and can be a maintained and developed over time. The e-portfolio option with its capacity for updating, sorting, selecting and easy communication or information transfer is well-placed to ease the burden on the professional by using a single tool to satisfy many outcomes. However these multiple uses also require the professional to think of the audience. Issues of confidentiality, accountability and the moral and ethical decisions about selection and preparation of material are important.

The Pedagogical Model: theory and learning support

The theoretical basis underpinning a portfolio approach to professional support might be argued to be based on four assumptions of adult learners, modified from Knowles (1975): (i) the professional is self-directed, (ii) the professionals past experiences are a rich resource for learning/ development (iii) readiness to learn/ develop arises from tasks and problems, and (iv) the professional demonstrates curiosity and is self-motivated to grow and achieve.

This is based on a learner-centred model and adopts a 'carrot' rather than 'stick' approach to learning. Therefore one should question the utility of a learning management systems associated with an ePortfolio that monitors and records individual learning input, effort and achievement. Within the learner-centred model design should aim to encourage and motivate individuals to identify and respond to their own learning needs and in turn gather and record evidence of this learning within the ePortfolio. A portfolio supported approach to professional development is founded on the individual being at the centre of the development process, identifying, directing and evaluating their development and requires a realisation of the value and potential of their development to the goals of the profession, the service recipients and to themselves.

In developing ePortfolios for CPD it is also important to consider the role of the learning provider who supports the professional in developing their portfolio. The term 'teacher' is patently

inadequate because if professional development is learner centred then it seems unlikely that it can simply be 'provided', served up on some sort of technological plate. However the role of teacher/lecturer in a traditional sense, in which knowledge is deposited into *'the needy, passive and empty-headed student'* (Forman et al 2002: 76) in a high-technology, knowledge-based society therefore becomes,

'...one of accompaniment, facilitation, mentoring, support and guidance in the service of learner's own efforts to access, use and ultimately create knowledge'. (Commission of the European Communities 1998: 9).

The learning provider therefore becomes one of enabler, to ensure the technology is useable by the learner, that they develop the skills and confidence for effective learning in addition to possibly, though not necessarily, providing learning materials. In short, the 'teacher' has the responsibility to create learning environments that place the learner at the centre and support the building of learning 'connections'³ that link the professional, the person and the context and move them and the service they provide forward.

The Solution!

The RCN Learning Zone was developed in response to members. It provides a template driven ePortfolio with a number of elements: Information, Achievements, Employment, Learning and Plans and Evidence

From this it will generate automatically an editable CV and a Portfolio both of which can be saved into a Word Document for additional or alternative formatting. There is also a Calendar within the Portfolio that enables the administrator to add information on learning events focused upon geographical region and field of practice.

Whilst we recognise that the ePortfolio is not right for all our nurse members it has a wide range of benefits for both individuals and organisations:

- Takes up minimal storage space as material is stored digitally
- Provides templates for gathering evidence
- Links to learning areas which aid development of portfolios
- Allows action plans to be generated to focus on further development needs
- Easily updateable – can be changed whenever and wherever required
- Accessible can be opened wherever is web access
- Increases technology skills in using and developing the site
- Easily communicated i.e. selected material can be saved to disc or e-mailed directly to a reviewer
- Automatically generates a curriculum vitae

Whilst the ePortfolio is central to producing a record of learning and identifying actions and evidence to advance learning it resides within a site which contains additional elements to support continuing professional development. This includes Careers advice/resources, specific learning resources with interactivities and easy links to full text journals and library databases guidelines for clinical practice, Meeting Places to promote professional dialogue an Information Services section with useful online resources identified by our library and information colleagues.

The associated workshop will explore the developments outlined in this abstract in more detail and discuss how services continue to change in response to user feedback, political/ organisational changes and best practice lessons from other ePortfolio providers.

References

Commission of the European Communities (1998) Learning for Active Citizenship, Directorate General for Education, Training and youth, Brussels.

Department of Health (2001) Working Together, Learning Together. A framework for lifelong learning in the NHS. Department of Health, London.

³ There should be both vertical learning connections, e.g. between different levels of institution and/or qualifications, and horizontal learning connections, e.g. between family, profession, community, employer (Field 2000: 137).

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- Forman, D, Nyatanga, L, Rich, T (2002) E-learning and educational diversity. *Nurse Education Today*, 22: 76-82.
- Kenworthy D, Dearnley C (2001) Achieving lifelong learning in nursing. *Professional Nurse* 16 (6): 1162-1164.
- Knowles, M (1975) *Self-Directed Learning: a Guide for Learners and Teachers*. Follet, Chicago.
- Maslin-Prothero, SE (1997) A perspective on lifelong learning and its implications for nurses. *Nurse Education Today*, 17: 431-436.
- McMullan, M et al (2003) Portfolios and assessment of competence: a review of the literature. *Journal of Advanced Nursing* 41(3): 283-294.
- Scottish Executive (2003) *Lifelong through learning, learning through life. The Lifelong Learning Strategy for Scotland*. Scottish Executive, Edinburgh
- Storey, L (2002) Nursing in professional practice. *Nurse Education in Practice*. March, 2002.

Barbara Cambridge, AAHE – *The Future of Electronic Portfolio Technology; Supporting What We Know about Learning*

This scenario illustrates central aspects of learning and ways in which electronic portfolios can support that learning. Referring to the scenario, Barbara Cambridge will focus on how electronic portfolios can support learning. Darren Cambridge will describe what future technology is needed to provide that support. Conferees can use the attached listening and thinking guide to generate their own ideas about portfolio learning and technology.

Next spring I graduate from high school. In my country, the United States, that means that I am looking at colleges and universities. I'm trying to decide where to go. My mother and father have advised me to look at institutions that have portfolios directed at me, a prospective student, and I've found some helpful ones. Let me tell you about one.

The college that I'm most interested in so far interests me because they seem to understand what I want to know. For example, I had worried that I might not be able to succeed at this college, but I found examples of graded student papers from different courses with reasons given for the grades. When I look in my own portfolio from high school, I realize that I already can write according to the minimal requirements in the history and sociology departments. This college portfolio also has a chat room where I can talk with current students. One student advised me to request a certain dorm with quiet hours for study and peer mentors on site. I'm glad this school didn't just send me to an institutional website, like some other colleges did, where there is so much information that I can't find anything. The portfolio guides me well to what I need.

Throughout high school I have created a learning portfolio, so I can demonstrate to this college why I should be admitted. The college's institutional portfolio includes files that tell the personal portfolio system on my computer what materials need to be included in my application, so I can create an application portfolio from text and video already in my working portfolio. This college is interested in creative people, students who are willing to take risks, and students who have succeeded so far academically. I'll need to go into my portfolio to see what evidence I have of these three characteristics. I guess for three pieces of evidence I can use a clip from my role in our Drama Club's translation of Romeo and Juliet into the world of Star Trek, an excerpt from my journal when I did service learning at an inner-city youth development site that worked with gangs, and my teachers' narrative praise about my senior project. I'll need to reflect on why these pieces speak to the qualities that the school wants. The files I downloaded include instructions for my personal portfolio system that guide me through the reflection process when I need help. When I'm done, I can tell my system to publish my application portfolio to the college's system.

Fast forward the scenario. I'm now at the college that I wanted to attend. One reason that I wanted to go here is that the college has done away with credit hours. In my student electronic portfolio I have to document in a verified way that I have developed a set of competencies that this college values. Fortunately, I am clear about those because they are defined and explained in the institutional portfolio, in ways both my portfolio system and I can understand, and where students and faculty members tell about ways in which the competencies can be exhibited. For example, each student here must demonstrate the ability to work in a team. I can show that through effective participation in a study group related to a class, through leadership in a co-curricular activity, or through analysis of collaboration where I work. It's important to me that the college thinks it's fine if I develop this

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competency outside of a class, just so long as I can reflect on the significance of the competency and can document feedback about my level of competence.

I'm choosing as one piece of evidence the study group that I was in for my beginning biology course where we evaluated each other's contributions to our learning in the course according to criteria that the professor and our class generated together. My portfolio tool can talk with the course management system we used in class and grab the criteria for me to use in my portfolio. Guess I'll also use a video where I, as director of a play, am giving feedback to actors after a rehearsal to show that I understand how every role is important and how every actor needs affirmation and help to make the play production successful. I'll look in my working portfolio for some other examples. It's fortunate that we keep a working portfolio of all our work so that we can choose from it when an occasion comes up where we need evidence. I'm finding that when I think about past work, such as the play production, for a new purpose I learn something else from the experience. For example, I really hadn't before thought about my feedback to actors as supporting teamwork. I was only trying to make the play better. This must qualify for what some of my teachers call repurposing learning. Now, I use the college's video editing tool to highlight the parts of the recording that best demonstrate this new understanding.

One of the hardest things to do as I move from class to class is figuring out how all my classes fit together. We have general education courses that supposedly add up to what many people call a well-rounded education. I do have an ongoing dialogue journal in which I reflect on connections among my courses, with space for other students to whom I've granted access to enter their reactions to my reflections. Sometimes one of my classmates can see linkages that I can't. In my college's electronic portfolio, it's interesting to read in faculty members' portfolios how they see connections among their research, service, and teaching, which I guess is a challenge just like mine about general education. For example, my psychology professor does research on intrinsic motivation. Because he believes intrinsic motivation is necessary for transformational change, he is against grades, one form of extrinsic motivation. He instead responds to our accounts of how and why we are learning. In his teaching he gives grades only when he has to at the end of a semester to satisfy the college. Fortunately, when I want to use an ungraded paper for another purpose, I can link to my professor's portfolio to show why the paper has no grade.

During the course this professor asks students to make sense of what they are learning through relating it to their own values and goals. Actually that fits well with the college's competency about ability to self-assess. Anyway, this point of integrating what we learn seems for me to happen most naturally when I'm trying to make a point in my portfolio. When I have to demonstrate that I am quantitatively literate, for instance, one of my college's competencies, I can show how what I learned in statistics helps me in media studies as I interrogate the use of tables and charts by a politician making claims about something. Rather than just writing about the connection, I can annotate the papers I wrote, make links between the important parts of the documents adding my reflections on the connect, and link to another student's portfolio in which she makes a similar claim about her learning. I let my personal portfolio system know that this set of reflections and relationships is an argument that I've developed for the quantitative literacy competency, and my system lets the college's computer know too so that information about my progress can be combined and compared with all the other students at my school without a whole bunch of people staying up all night reading or me having to take a stupid standardized test.

Another example is when I look in my portfolio at a short story analysis, I find that what we're studying in history about a person's perspective as determinate of how one gives historical accounts holds true in literature. The eyes of the beholder focus the gaze, whether in fiction or current events. My analysis of the short story is actually reinforced by what I wrote about two contradictory versions of one historical event that we studied. I have links in my portfolio to some other students' perspectives in their portfolios to reinforce the importance of perspective.

I've learned recently that my college has to provide a version of its progress toward its mission and goals through its own electronic portfolio for accreditation. It used to be that every ten years the accrediting association required a self-study and a campus visit to affirm if the college were living up to its responsibilities. That has changed, however, because the electronic portfolio enables the college to continuously represent its progress. As a student, I contribute to that representation because, in addition to coding my portfolio so that the college's computers can read it, I can give permission to my college to repurpose entries in my portfolio as examples of students' progress toward learning outcomes. I recently made public the mind map that I did in philosophy class showing how I reasoned my way to a certain ethical position. Since the college's mission statement contends that the college helps students become ethical and responsible citizens, this map shows not only that I have an ethical position but also that I know how I got there.

Fast forward. I'm in my final phase of undergraduate work. Although I've just moved cross country because my husband has a two-year job assignment here, I can continue my education via my portfolio. Before we moved, I had already taken three courses via distance learning opportunities at other colleges that had courses my college didn't offer. My experience with doing a portfolio had taught me a lot about representing my learning on line, so I did very well in distance learning. The colleges I took distance courses at all also asked me to keep portfolios of my work. Because I could use my personal portfolio tool to connect to multiple institutional systems at once, and because I could draw on the stuff I'd already put in my working portfolio, I didn't have to start from scratch each time.

Anyway, I'm within two competencies of finishing my baccalaureate degree. What to do next in my life, though, weighs heavily on my mind. I've been dipping into my portfolio to reread and view again its contents. Fortunately,

in my capstone class, I am reflecting about my learning over my undergraduate career, both by writing reflective papers and by remixing materials in my portfolio, creating annotations, links, and paths for readers that represent my new understanding of my experience as a whole. I'm seeing connections among topics and papers that I never noticed before—and I'm doing it myself. When I started college, I wouldn't have been able to make sense of disparate parts like this. In my freshman composition course, my professor walked us through how to be reflective and how to write reflectively. She gave us guides we could use in our personal portfolio systems, tools that made the process easier. Now I can do so on my own, and I'm using the design skills I've developed over the years to reflect in ways my professor probably never would have imagined.

Having documented my progress toward the competencies that my college cares about, I'm finding in job descriptions that employers care about some of the same things. For example, that teamwork thing is really important. But, I don't think an employer will take the time to look at my video from the play production. I have to decide on another piece of evidence that will crystallize my ability as a team player. Maybe I'll use two or three sequences from the transcript of a MOO session that my writing group had in which we divided parts of a research project. Each short quote might show a different skill, for example summarizing, persuading, and setting timelines for team results. Connecting to my college's portfolio community server, I'll look at the career portfolios of alumni from my school who got great jobs and see what other strategies they used to show that they worked well in teams. Fortunately, my college, knowing how often people change jobs and how important lifelong learning is, supports alumni portfolios so long as graduates want to generate them.

One of my professors is always talking about how knowledge is socially constructed. By that, she means that groups of people decide what counts as knowledge in a certain context. I've been thinking lately that although my electronic portfolio looks as if it's mine, it's actually been socially constructed. Through expectations of my college, feedback from my professors and peers, and even the changes I've been through as a person in college, I have changed as a learner. Through the generation of my working portfolio and each portfolio that I've constructed out of it for different purposes, I've been part of a social network. I'm not in this by myself. That's a good thing. I like being confident that I have these competencies, but I recognize that my knowledge is at least partly dependent on my context. I guess that's why the people who designed my personal portfolio system and the people who designed the college's system made it so easy to connect to my peers, my professors, and my school through my portfolio.

When my husband is finished with this assignment and we relocate, I'm going to look at the cities that we consider. I've seen lately that some cities are creating electronic portfolios for their various publics. One person pointed out to me recently a city that has an electronic portfolio for potential residents, just like my college has one for potential students. The electronic portfolio even acknowledges demographic characteristics of potential residents so that it can address individual interests. For instance, in the portfolio a person can, if she wants to, identify age, cultural interests, church affiliation, and a number of other characteristics. Then a certain path through the portfolio is indicated for that person. Since I want a place where I can get into some political action group easily, I'm eager to see what groups are available that invite people of my age and experience. Already, I've found one group I'd like to become involved with, and I've created a portfolio that showcases my skills to make it easier for the group leaders and me to figure out when we talk where I might fit.

I've heard that I can, in this city's electronic portfolio, do a synchronous chat with someone of my same political party and in my age bracket. I should learn a lot from that chat: in my rhetoric class here at college we learned discourse analysis, so I can have the chat and then look at the transcript to reflect on the interchange later.

In my capstone course this last phase of my undergraduate studies, we read an article about what a researcher calls folio thinking. I believe that that's what I do now. As I experience something, I think about its context, how it's related to other things I've learned, and even how I can relate it to others. That's not the way it was in high school, and I know it's not the way at many of the colleges and universities where friends of mine go.

Using electronic portfolios has changed my college and some of my professors, too. Instead of many different printed brochures about itself, my college points interested alumni and community members to its electronic portfolio as the best place to understand what is going on in research, teaching, and service and how they are related. Some of my professors have links in their syllabi to their electronic teaching portfolios, so that, if students or peers are interested, they can see the origins of the course content and the teaching strategies that the professor has decided to use to facilitate learning. One of my professors from my first year told me he even followed the links in my portfolio back to teaching materials from other classes I had taken and learned some new techniques he now uses when he teaches.

I don't know if the colleges and cities that now do portfolios have evidence of their impact. I'd be willing to be part of a study about impact, though. I know that I've learned from and made decisions based on my portfolio. After all, I'm now a folio thinker.

Poitiers 9-10 October 2003

**Darren Cambridge, AAHE –
*ePortfolio Specifications and Standards***

ePortfolio Specifications and Standards

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Why open standards?

- Portability
- Interoperability
- Semantics
- Independence

Standards Dimensions

- Data models (the nouns)
- Communications protocols (the verbs)

Some of the Players

- IMS Global Learning Consortium
 - <http://www.imsglobal.org/>
- Open Knowledge Initiative (OKI)
 - <http://web.mit.edu/oki/>
- HR-XML Consortium
 - <http://www.hr-xml.org/>
- Internet Engineering Taskforce
 - <http://www.ietf.org/>
- Internet 2 Middleware Project
 - <http://middleware.internet2.edu/>

Interoperability Requirements

- Learner information
- Documents and collections
- Assessment data
- Security
- Workflow / pedagogy
- Portfolios

Learner Information

- IMS Learner Information Profile (LIP)
 - UK Learner Profile mapping:
<http://www.cetis.ac.uk/profiles/uklip>
 - Reusable Definitions of Competencies and Educational Objectives (RDCEO)
- HR-XML
 - Education History
 - Employment History
 - Competencies

Documents

- PDF archival (PDF/A)
- XML, XLS style sheets, and XSTL transformation
- XHTML

Collections

- IMS Learning Resource Meta-data
- IEEE Learning Object Metadata (LOM)
- IMS Content Packaging
- OKI filing

Assessment Data

- IMS RDCEO
- IMS Question and Test Interoperability (QTI)

Security

- Authentication and Authorization
 - IMS Enterprise
 - Internet2 Shibboleth (EDUPERSON)
 - OKI authorization and authentication
- Digital Signature
 - RFC 3275: XML signature
 - PDF/A

Workflow / Pedagogy

- IMS Learning Design
- OKI workflow

Portfolios

- IMS ePortfolio SIG
- CETIS / JISC ePortfolio Group
- OKI - Open Source Portfolio Initiative collaboration

IMS and ePortfolios

- ePortfolio SIG formed, May 2003
- Use cases collected and charter under development
- Focus on portability
- If charter is approved, profile of existing specifications early to mid-2004
- Updates to existing specifications starting late 2004


UK ePortfolio Group

- Center for Educational Technology
Interoperability Standards, Center for Recording
Achievement
- Profiling and extending LIP to represent
 - UK transcript
 - Personal development records
 - European transcript

OKI-OSPI ePortfolio work

- OKI and OSPI developers collaborating on an
ePortfolio open service interface definition
(OSID)
- Focus is on enterprise integration
- “A digital repository with a purpose”

**Kathryn Chang-Barker, FuturEd –
*Managing Learning in the Workplace with the
ePortfolio***




EIFEL 2003

Managing Learning in the Workplace with the ePortfolio

Presented by:
Dr. Kathryn Chang Barker
 FuturEd Inc.


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Options for Managing Learning


CREDENTIALS

- Reflect time spent in class
- Questionable proficiency
- Proxy for skills and knowledge
- Dated
- Variable quality
- Formal learning only



Or something else...


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The Option


Human Capital Accounting / Management

- Incorporates all types of learning
- Describes KSA required for tasks
- Depends on an inventory of acquired KSA (ePortfolio)



Knowledge Skills Abilities

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Terminology


- **Learning**
 - formal, non-formal and informal
 - change in KSA
- **Workplace**
 - Industrial
 - Knowledge-based
 - SMEs
- **ePortfolio**
 - Electronic Learning Record
 - Portfolio of ALL learning
 - Ubiquitous but problematic

Human Capital Assets
 knowledge resident in humans

Human Capital Accounting
 measurement and management of Human Capital




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Human Capital Accounting


A method of systematically identifying, measuring and presenting information about the human resources and human capital of an organization (OECD)



Linked to but different from


- intellectual capital
- human capital management
- intangible assets

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Working is Learning is Working...

- In the KBE, learning is the basis of production
- Employers require fewer permanent workers, more learners
- Individuals must become "niche providers" and manage their own learning




Knowledge Based Economy

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FuturEd Leadership



- ✓ Building on CLFDB work on PLAR and SKP
- ✓ Studying the Electronic Learning Record
- ✓ Applying the HCAM concept
- ✓ Generating ePortfolio Quality Standards (now)
- ✓ Planning ePortfolio Processor ®

The time has come...

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Why the ePortfolio?

HRD POLICY GOALS
(CLFDB 1997)


- Better use of human resources
- Recognition of foreign work experience
- More efficient training
- Improved labour exchange
- Better management of HR within a firm
- Promotion of lifelong learning

RESEARCH CONCLUSIONS
(FuturEd 2000)

- ✓ ELR can address policy goals
- ✓ Having an ELR can benefit individuals, employers, educators and society at large




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PLA is the Beginning

- PLA – a way to determine what a person knows and can do
- PLA/PLAR can be used for:
 - access to education
 - career planning and development
 - access to employment
- Learning Record is an outcome of PLA



Prior Learning Assessment


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ePortfolio is the Medium

1. Create electronic profile / inventory
2. Create electronic work description
3. Use computer to match

ePortfolio SYSTEM




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HCAM is the Result


- **Individuals**
 - Develop and maintain ePortfolio
 - Take control of career
 - Develop efficient learning plans
- **Employers**
 - Complete inventory of workforce skills
 - More efficient description of work required
 - Pay for skills used not for time spent
 - Manage and target learning
- **Society at large**
 - Accurate inventory and skills gap analysis
 - Promotion of lifelong learning
 - Avoid pitfalls of credentials



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The End of Credentials in the Workplace



ePORTFOLIO

- Reflects time spent learning
- Evidence-based proficiency
- Statement of actual skills and knowledge
- "Living"
- Systematic
- All learning valued

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Theory into Practice

Building FuturEd with HCAM

1. Find a language that communicates
2. Describe what is needed by projects and by FuturEd (and set fee structure)
3. Ask individuals to describe what they love to do
4. Match on that basis
5. Estimate amount of SKA (learning) required for production
6. Pay on the basis of production



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Imagine..

HCAM in the Education Industry

- **Employer describes**
 - What is to be produced (learning)
 - Tasks contributing to production
 - Associated and necessary KSA
- **Employee then**
 - Sets out inventory of KSA
 - Contracts to do certain tasks and to produce learning
- Moves learning systems into the KBE



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ePortfolio (HCAM)



- Critical to the KBE
- Promotes lifelong learning
- Promotes ROI of training
- Applies PLA in the workplace
- Maximizes human capital individually and collectively
- Manages learning in the workplace

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For more information, contact:

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...helping change learning systems for the future

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**Kathryn Chang-Barker, FuturEd –
*ePortfolio Quality Standards: an International
Development Project***



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ePortfolio Quality Standards: An International Development Project

**Discussion Paper
Dr. K. Barker: September 2003**

Project Objective:

To create consumer-oriented, consensus-based industry quality standards for the ePortfolio.

Development Process:

The project involves four steps:

1. Preparation and circulation of this ePortfolio Discussion Paper.
2. Responses by individuals to the questions posed.
3. Consideration of all the responses by a panel of eLearning experts.
4. Insertion of the ePortfolio Quality Standards into the CanREGs – the Canadian Recommended E-learning Guidelines¹ (© FuturEd and CACE, 2002).

This ePortfolio Discussion Paper begins with the preliminary work that has been done on ePortfolio quality², the environmental scanning³, and the research conducted by FuturEd⁴. It includes a current environmental scan that introduces developments and unresolved issues around quality, standards and the ePortfolio; and poses the discussion/response questions.

The project will be undertaken largely via the Internet, with some small group sessions where possible.

¹ The CanREGs are available on-line from a wide number of sources, including www.eQcheck.com
² *ePortfolio Policy and Implementation White Paper* (FuturEd, 2003) available at www.FuturEd.com

³ *Assessment and Management of Skills and Knowledge: an ePortfolio Environmental Scan* (Barker, 1999) available at www.FuturEd.com

⁴ *The Electronic Learning Record (ePortfolio): Assessment and Management of Skills and Knowledge: Research Report* (Barker, 2000) available at www.FuturEd.com

The panel of experts includes representatives from the original CanREG Advisory Committee and from additional organizations who have an interest in eLearning, including but not limited to:

- # Association for Media and Technology in Education in Canada
- # Canadian Association for Community Education
- # Canadian Association for Distance Education
- # Canadian Education Association
- # Canadian eLearning Enterprise Alliance
- # Canadian Society for Training and Development
- # Commonwealth of Learning
- # European Institute for E-Learning
- # Lincef, TeleUniversite
- # Human Resources Development Canada
- # Industry Canada

Participants:

FuturEd Inc. as a commitment to keeping the CanREGs current and useful leads the project. Any and all input is welcome. However, the final Quality Standards will be the consensus-based output of the panel of experts. Submit your “answers” to the 6 questions to kbarker@futures.com before Oct. 31, 2003.

Underlying premises:

1. The ePortfolio is an **electronic learning record**, i.e., it is a computer-based inventory of an individual’s skills and knowledge. Compared to paper-based portfolios, the use of computers is assumed to make the creation, updating, and utilization of portfolios easier, more effective and efficient. In some cases, the ePortfolio is web-based and the term “webfolio” is used to mean a dynamic Web site that interfaces with a database of student work artifacts, where functionality derives from HTML links.

Other labels that relate to the ePortfolio include:

- | | |
|------------------------------|--------------------------------|
| # Electronic learning record | # Record of Achievement |
| # Electronic portfolio | # Skills Passport |
| # Prior Learning Portfolio | # Skills and Knowledge Profile |
| # Learning Passport | # Digital learning record |

2. The ePortfolio currently takes many, **many forms**. Regis University sets out Development, Assessment, Showcase and Hybrid Portfolios.⁵ Helen Barrett lists the Working, Reflective, Connected and Demonstration Portfolio.⁶ The ePortfolio is relatively new and totally unregulated.
3. The ePortfolio has **many different uses**. For example,
 - # Individuals can use portfolios in applying for entrance to education or employment, for career planning and development.
 - # Educators use portfolios as a form of assessment, and as alternative achievement records.
 - # Students and artists use portfolios to highlight their capabilities.

⁵ *E-Portfolio Basics* at http://academic.regis.edu/LAAP/eportfolio/basics_types.htm

⁶ *The Electronic Portfolio Development Process* (Barrett, 2000) at <http://electronicportfolios.com/portfolios/EPDevProcess.html>

- ⌘ Employers use portfolios to recruit the right employees, manage individual and team capabilities.
- ⌘ Trainers use portfolios to identify skill gaps and target appropriate skills upgrading.

This introduces the concept of both creator (user of tools) and receptor (user of the ePortfolio).

4. As an innovation in the assessment and management of learning, the ePortfolio has the capacity to address a number of **important public policy goals**, including:
 - ⌘ Better use of Human Resources, company-wide and country-wide;
 - ⌘ Increased productivity and economic prosperity;
 - ⌘ Improved education and more efficient training systems;
 - ⌘ Increased individual capacity to manage career development and engage in lifelong learning.

The ePortfolio is a key tool in the implementation of Human Capital Accounting as recommended by the OECD.⁷

5. There is a tight link between the ePortfolio and Prior Learning Assessment, i.e., PLA is a process of identifying what a person knows and can do, and the ePortfolio is an outcome of that process. It is the record that is created to represent the inventory of acquired skills and knowledge. The entire inventory of what a person knows and can do is the result of many types of learning:
 - ⌘ Formal learning through education and training;
 - ⌘ Informal learning through family and community life, reading and travel;
 - ⌘ Non-formal learning through work and workplace training;
 - ⌘ Accidental or incidental learning.

All forms of learning have value.

6. The CanREGs state that good eLearning concludes with a method by which individuals can add what they've learned to their personal portfolios. The purpose of this project is to be more specific about how this is best achieved from the user or consumer point of view.
7. There are many kinds of standards in eLearning: technical standards such as SCORM, curriculum standards for content, instructional design standards, assessment and evaluation standards. This project focuses on **quality standards**, i.e., what makes the ePortfolio effective and efficient for those who create and use them – individuals, employers, and educators.

Question 1: *Do you accept these premises or do you think they should be changed in some way?*

⁷ ePortfolio and Human Capital Accounting: FuturEd White Paper (Barker, 2003) at www.FuturEd.com

A starting point:

In 1997, the Canadian Labour Force Development Board (CLFDB) undertook a study of the “electronic learning record” and concluded that, in order for an ePortfolio to make a contribution to increasing the effectiveness, efficiency and equitability of a labour force development system, it must include both an instrument (format, content), a process (access, development, maintenance) and a utility for all the labour market partners that meet minimum standards for effectiveness, efficiency and equity. Under the leadership of FuturEd Inc., the CLFDB created the following **recommended national ePortfolio standards** to address Human Resources Development policy goals.

1. The ePortfolio should list and describe skills and knowledge in a way that is recognized and respected by all the labour market partners.
2. The ePortfolio should have the capacity to be a complete inventory of skills and knowledge acquired by the individual regardless of where they were acquired.
3. An individual should develop and own his/her ePortfolio. Some people may require informed assistance to achieve this. The use of the ePortfolio and any changes to it should be completely controlled by the individual.
4. The content of the ePortfolio should be current, accurate and verifiable.
5. The ePortfolio should allow flexibility to accommodate unique or industry-specific skills.
6. The ePortfolio should follow a standardized format. The ePortfolio content and format should link to existing and developing labour market exchange systems.
7. The ePortfolio and its development process should be relatively simple and straightforward.
8. The development and use of the ePortfolio for any and all Canadians should be barrier-free; that is to say, social identity, disability and geography should not be barriers to individuals.
9. The development and content of an ePortfolio should be bias-free.
10. An ePortfolio should not create barriers; for example, a person who does not have an ePortfolio is not discriminated against for the lack of one, or for the skills revealed.

Question 2: *These might serve as a starting point to a set of ePortfolio Quality Standards. What would you remove? What would you change?*

FuturEd ePortfolio Research:

In 2000, FuturEd conducted a research project to see if and how individuals benefited from having ePortfolios.⁸ From this research, the following specific recommendations were made.

1. To generate an ePortfolio, a person must be given considerable dedicated time and professional assistance. This may also be true for the process of updating an ePortfolio to keep it current. A workshop may be the preferred process.
2. A method of demonstrating and/or verifying skills and knowledge, beyond credentials, must be developed and systematically adopted to ensure confidence in the ePortfolio, particularly if non-formal learning is to be recognized.
3. An ePortfolio must be designed with no redundancies, with explicit instructions, and with examples and a glossary of terms. Ideally, it would be interactive.
4. To be effective and efficient as a system, and to achieve the public policy goals, the ePortfolio should be developed on a province-wide or nation-wide basis.

Question 3: Do you see anything here that would contribute to ePortfolio Quality Standards?

⁸ *The Electronic Learning Record – Assessment and Management of Skills Knowledge – ePortfolio Research Report* (Barker, 2000) available at www.FuturEd.com .

New Thoughts and Issues:

A review of the recent literature reveals the following issues that might shape the ePortfolio Quality Standards. There is rising interest in the ePortfolio as it addresses important Human Resources Development policy goals and assists in the implementation of Human Capital Accounting for the Knowledge Economy. For example:

- €# The European Institute for E-Learning (EifEL)⁹ links the ePortfolio to eLearning and seeks to find applications that remove the boundaries between education and employment.

The greatest development of the ePortfolio appears to be in the context of education, particularly higher education (in contrast to the workplace¹⁰). For example:

- €# There are ePortfolio development projects in at least 20 prominent US universities, colleges and/or education departments.¹¹ From an examination of those projects, Batson concludes, “Electronic portfolios have a greater potential to alter higher education at its very core than any other technology application we’ve known so far.”¹² He asks these questions:
 - €# How do we deal with **long-term storage, privacy, access, and ongoing vendor support?**
 - €# What about the **challenge of interoperability** among platforms so student work can move to a new campus upon transfer?

Batson notes that administrators in some fields have recognized that ePortfolio tools are very useful in organizing curricula around professional standards. The *Portfolio Guides by Certification Area*¹³ used by Southwest Missouri State University is a good example.

Batson introduces a “tribal discussion” about ePortfolio standards that is focused on these problem areas: **storage, security, certification, and industry-interface**. He raises the critical question: should institutions of higher education attempt to certify student work, stored on campus-based ePortfolios, as authentic? Is it part of the official transcript?

⁹ <http://www.eife-l.org/portfolio/>

¹⁰ The Centre for Recording Achievement, which promotes Recording Achievement, Personal Development Planning and Progress Files within educational institutions and professional bodies in the UK, provides no case studies with employers. www.recordingachievement.org

¹¹ *The Electronic Portfolio Boom: What’s it all About?* (Batson, 2002) at <http://www.syllabus.com/article.asp?id=6984>

¹² Borden and Thomas (2001) agree. They say “Creating electronic institutional portfolios requires the alignment of technical, analytical, evaluative, academic and graphic design resources in ways that most colleges and universities have never done before.”

¹³ *Portfolio Guides by Certification Area* at education.smsu.edu/peu/student_portfolios/portfolio_guides.htm sets out Conceptual Framework Learning Outcomes for the university’s education program.

*The Urban Universities Portfolio Project: Assuring Quality for Multiple Publics*¹⁴ produced 13 lessons learned in the comparison of ePortfolio development at six major US universities. Among the lessons learned are these two: “here is no one right answer about which tools to use” and “portfolio development is like a gas: it will occupy any volume it is provided.”

Prominent among ePortfolio experts, Dr. Helen Barrett from the University of Alaska says:

Re: Confidentiality¹⁵: “The quality of the learning that results from the portfolio development process may be in direct proportion to the quality of the student self-reflection on their work. One challenge in this process will be the need for confidentiality of these reflections. This is the place where the personal, private reflections of the learner need to be guarded.”

Re: Standards:¹⁶ “I see a lot of variations on the technologies used to develop electronic portfolios, but very little linkage to the actual benchmarks that students are supposed to be demonstrating.... Too many of the current examples of electronic portfolios, both “classroom grown” and commercial, focus on the glitz and glamour of high tech multimedia... Most states have adopted standards for students, practicing teachers, and new teachers. These standards form an ideal framework for thinking about organizing an electronic portfolio..... Without standards as an organizing basis for a portfolio, the collection becomes just that... a collection, haphazard and without structure; the purpose is lost in the noise, glitz and hype.”

In a review of electronic portfolio research for the National Learning Infrastructure Initiative, Cambridge¹⁷ concluded that the essential ingredients for successful ePortfolio implementation for an institution are **standardization, interoperability, a universally agreed-upon sets of definitions, and adoption of policies that will guide both behaviour and expectations when it comes to copyright law and easy access to digital information.** He adds that “without a set of standards for interoperability, students will, at best, be frustrated by the limitations imposed on their efforts to compile their work and, at worst, abandon their e-portfolio efforts altogether.” Cambridge reports on a project called ePortConsortium¹⁸ that intends to create an ePortfolio management system with a goal of making it **easy to use, customize and maintain.** The project

¹⁴ *A Baker's Dozen Lessons Learned About What It Takes to Develop and Sustain Electronic Portfolios for Program and Institutional Assessment* (Borden and Thomas, 2001) at

<http://www.imir.iupui.edu/portfolio/lessons.htm>

¹⁵ *Electronic Portfolio Planning Worksheet* (Barrett, 2000) at

<http://electronicportfolios.com/portfolios/EPDevProcess.html>

¹⁶ *Electronic Portfolios and Standards* (Barrett, 1998) at

<http://electronicportfolios.com/portfolios/TelEd98Abstract.html>

¹⁷ *The Digital Me Standards, Interoperability, and a Common Vocabulary Spell Progress for E-Portfolios.* (Cambridge, 2003) at www.educause.edu/asp/doclib/abstract.asp?ID=NLI0350

¹⁸ <http://www.eportconsortium.org/>

manager, Ali Jafari of Indiana University, says **“the right system would enable every user to have a URL; would allow for custom templates; make it possible to present, manage, and even hide or keep in storage artifacts; would incorporate student learning outcomes; would allow for dynamically presented resumes and curricula vitae; would dynamically create accounts for every student, staff member and faculty member; and would support a variety of authoring tools.”** As a contribution to the project, Ruth Sabeen and Eric Splaver of UCLA note that **“one of the chief requirements is the ability to integrate the system into their existing systems, such as grade books, course management systems, portals and systems that enable data to be taken from one campus to another.”**

Many colleges and universities encourage students to use their proprietary systems, and provide online tools and instructions.

1. When they were developing their system, the University of Florida¹⁹ decided that their portfolio system had to be dynamic: it had to be easy to access, use and modify. And it had to accept a variety of media, including text, graphics, sound and video.
2. Among the many detailed directions, the University of Redlands²⁰ warns that:
 - ## Students must adhere to all copyright laws pertaining to scanning images and documents.
 - ## The university will not return portfolios to students, so they should keep a copy.
 - ## The student portfolio must be submitted on a CD-R, not on a Zip Disk or as a PDF.
3. Pennsylvania State University²¹ lists Do's and Don'ts -- among them:
 - ## Don't include large audio files that take a long time to download.
 - ## Do have others view at your online e-Portfolio both for mistakes and also for impact. Have individuals use PC and Mac platforms for examination and check out the format with both Netscape and Internet Explorer, as there can be differences in what is portrayed.

Working to catch up, the eLearning industry has begun to develop ePortfolio tools. Several companies, including BlackBoard, WebCT, SCT, Nuventive, Concord, McGraw-Hill, Chalk and Wire, and others are said to either have or are developing electronic-portfolio tools. In addition to commercial tools, there are some Open Source tools. The Open Source Portfolio Initiative (OSPI) is a collaborative, open source, software development project based on the University of Minnesota System's (U of MN) electronic portfolio (ePortfolio) software.²²

¹⁹ *History of the Portfolio System* at <http://www.coe.ufl.edu/school/portfolio/history.htm>

²⁰ *e-Portfolio Guidelines* from University of Redlands at www.redlands.edu.

²¹ *Developing an Online Application e-Portfolio* at

<http://www.personal.psu.edu/users/f/g/fgk1/portfolio/Portfolio.htm>

²² at <http://www.theospi.org/>

From an industry perspective, two types of standards are emerging.

- # ePortaro Inc.²³ has released a draft specification to encourage ePortfolio application integration and interoperability. “The ePortfolio Interoperability XML (EPIX) specification will allow disparate ePortfolio systems to speak a common language for discovery, integration, and synchronization without regard to implementation-specific technology choices. The EPIX specification is designed to leverage open Internet standards, including XML, SOAP, and HTTP to standardize the development of open ePortfolio system interfaces as well as to provide a roadmap for ePortfolio providers to build open, interoperable, standards-based applications.”
- # In advertisements, commercial ePortfolio tools introduce consumer standards as well. One of the prominent commercial ePortfolio tools is called e-Portfolio with Rubric Maker²⁴, available from Chalk & Wire, who claim that their product is *easy to use, flexible, powerful, portable, and cost-effective*.

Regis University compared seven commercial products (Nuventive IwegFolio, Personal Learning Plan, Interfolio, WebFolio Builder, OSPI, ePortaro, ePortConsortium, and True Outcomes).²⁵ To draw comparisons, faculty first determined the criteria that were important to them. The ePortfolio Features²⁶ are listed in Appendix A.

Question 4: *From these developments, what needs to be added to the Quality Standards? Have new ideas occurred to you? Is it possible to have “one” ePortfolio for all?*

Question 5: *What would you do with ePortfolio Quality Standards? Would you like to stay involved in the updating of eLearning quality standards?*

²³ ePortaro Releases First ePortfolio Interoperability Specification (January 29, 2003) at www.epixspecs.org/press02.html

²⁴ e-Portfolio with RubricMaker information is available at www.chalkandwire.com

²⁵ Regis University Electronic Portfolio Project at http://academic.regis.edu/LAAP/eportfolio/portfolio_features.xls

Appendix A: Regis University ePortfolio Comparison Features

Collection / content management

- # support documents, spreadsheets, slides, images, video and audio file types
- # can align artifacts to standards, outcomes or goals
- # standards/outcomes/goals are pre-populated
- # students align artifacts to standards
- # faculty align artifacts to standards
- # both students and faculty can align artifacts to standards
- # archive student artifacts
- # organization structure for artifacts
- # notification to faculty once artifacts ready for review
- # aggregation of information
- # create multiple portfolios for multiple purposes
- # artifact created once and placed in multiple portfolios/folders
- # can open/view all software attachments-- html or free viewers available
- # artifact/assessment matrix
- # student selects design template
- # student creates own portfolio design
- # portfolio provides multiple organization frameworks

Reflection

- # archived student reflection for each artifact
- # prompted questions to encourage reflection

Feedback

- # archive of student feedback
- # archive of faculty feedback
- # feedback is recorded by date and time
- # reviewer can upload documents
- # reviewer can make changes/corrections to artifacts (such as track changes)
- # feedback is private
- # feedback is public
- # feedback is public or private
- # peer review
- # anonymous review

Personal information

- # user chooses information to add such as address, email, phone
- # user can add information to personal profile
- # personal interests
- # personality/career inventories (i.e. Myers-Briggs)
- # education history
- # career plan
- # academic plan
- # interview information
- # professional skills
- # references/letters of recommendation
- # professional memberships
- # professional development
- # honors/awards/certificates
- # personal calendar

Permissions

- # password protected
- # secure server
- # user controls portfolio access by give/take of permissions
- # faculty have access to multiple portfolios within system
- # faculty have access to specific portfolio information
- # user designates content to be viewed by different audiences
- # shows user how many people have viewed portfolio

Publishing

- # external parties can view portfolio at any time
- # external parties can view specific portfolio products at any time
- # can turn portfolio into website
- # can burn to CD ROM
- # can resubscribe and keep portfolio on vendor's server
- # access is granted to alumni

Technology

- # files kept on university server
- # files kept on vendor's server
- # option to keep files on preferred server
- # each user provided with 30M or more
- # users can purchase more file space if needed
- # digital preservation
- # data is stored in relational database
- # web-friendly format
- # Data search and sort capability
- # users do not need to know HTML
- # integration with other campus databases including career services, registration and course management systems
- # ADA and section 508 compliant
- # multi-platform
- # delete and add functions based on departmental needs
- # allow companies to search for employees against student/alumni data sets
- # export portfolio info to third party applications

Support

- # help desk services via phone and email
- # help desk services available 24/7
- # file-backup at least every 24 hours

Training

- # training sessions conducted by vendor
- # faculty can create course websites

Question 6: *Is this a useful framework for Quality Standards? Do all of these criteria apply to the ePortfolio in the workplace? At the K-12 level?*

Please submit as Word document to kbarker@futures.com by Oct. 31, 2003

- Question 1:** *Do you accept the premises set out in this paper, or do you think they should be changed in some way?*
- Question 2:** *The CLFDB standards to address HRD policy goals serve as a starting point to a set of ePortfolio Quality Standards. What would you remove? What would you change?*
- Question 3:** *Do you see anything in FuturEd research that would contribute to ePortfolio Quality Standards?*
- Question 4:** *From the ideas and issues in the literature review, what needs to be added to the Quality Standards? Have new ideas occurred to you? Is it possible to have "one" ePortfolio for all?*
- Question 5:** *What would you do with ePortfolio Quality Standards? Would you like to stay involved in the updating of eLearning quality standards?*
- Question 6:** *Is the Regis University framework a useful one for ePortfolio Quality Standards? Do all the criteria apply to the ePortfolio in the workplace? At the K-12 level?*

Thanks!

Poitiers 9-10 October 2003

**Kathryn Chang-Barker, FuturEd –
The ePortfolio and Human Capital Accounting
*FuturEd White Paper***



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The ePortfolio and Human Capital Accounting

**FuturEd White Paper
Dr. K. Barker: September 2003**

Introducing Human Capital Accounting

The implementation of Human Capital Accounting (HCA) is an OECD-recommended means of improving the efficiency of human capital investment and utilization. The concept of HCA has been explored and developed by the OECD as a means to understand and implement the necessary adaptations individuals and nations must make to measure and utilize knowledge assets – knowledge resident in human beings – in relation to economic performance and prosperity. In 1996, the OECD concluded that public policy must focus on the development of better signals for competence validations, valuation, accounting and financial reporting. Firms had begun to think of employees as investments rather than costs, and as the cost-to-investment-based thinking evolved, the transition continued towards full accounting of human capital investments as assets that produce returns over an extended period of time. The OECD publications *Measuring What People Know: Human Capital Accounting for the Knowledge Economy*¹ and *Human Capital Investment: An International Comparison*² extend the treatment of physical capital to human capital in a discussion of knowledge production, diffusion and consumption in light of the disciplines of economics, accounting and education.

¹ *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996)

² *Human Capital Investment: An International Comparison* (OECD, 1998)

Human capital is defined as *the knowledge that individuals acquire during their life and use to produce goods and services or ideas in market or non-market circumstances*.³ According to the OECD, this definition of human capital is non-committal about the source, nature or validation of embodied competences; and helps to focus on two issues: (1) the productive capacity arising from knowledge; and (2) the utility of improving the methods for assessing the productive capacity of human capital. HCA is a method of systematically identifying, measuring and presenting information about the human resources of an organization. It is related to and sometimes confused with such other concepts as: intellectual capital,⁴ intellectual potential,⁵ knowledge management, Human Resources Accounting (HRA), Human Capital Management (HCM), intangible investments⁶ and/or intangible assets – which range from the intellectual property rights of patents, trademarks, copyright and registered design through contracts; through trade secrets and public knowledge such as scientific works; to the people-dependent or subjective resources of know-how, networks, organizational culture, and the reputation of product and company.⁷ FuturEd has concluded that the concept of HCA is also directly related to human resources management in the knowledge economy, lifelong learning, PLA/PLAR, electronic LMI management, and the electronic learning record or ePortfolio.⁸

The basis for interest in the ePortfolio, the assessment and recognition of non-formal and informal learning, and Knowledge Management is expediency. Expediency in the areas of human resources development and management, from the individual to the national level, is needed to address the challenges presented by the emerging Knowledge-based Economy, skills shortages, education/training reform, and structural unemployment. For example, in their analysis of the International Adult Literacy Survey (IALS) results, Human Resources Development Canada (HRDC) and Statistics Canada have concluded “that the ‘new’ economy requires workplace arrangements that empower employees to make workplace decisions and challenge them to use existing skills and develop new ones.”⁹ The Organization for Economic Co-operation and Development (OECD) has deemed it important that nations concern themselves with how and why they invest in and use human capital because a commitment to improving the skills of citizens is one of the principal means for dealing with economic uncertainty. The

³ *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996), p. 22.

⁴ Intellectual capital is proprietary information and knowledge that lowers costs or increases customer value; it is human capital plus structural capital such as databases and documents. Examples are patents, trade secrets, copyright protection, trademarks and contracts. An “intellectual capital” reading list is available at [Hhttp://www.icmgroup.com/biblio.html](http://www.icmgroup.com/biblio.html)

⁵ *The Austrian Approach to the Measurement of Intellectual Potential* (Schneider, 1999) at [Hhttp://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html](http://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html)

⁶ Intangible investments, in this context, include research and experimental development, training, organizational change, marketing and software.

⁷ Hall, R. 1992. The Strategic Analysis of Intangible Resources, *Strategic Management Journal*, Vol. 13.

⁸ For more information on the ePortfolio, see other FuturEd papers, e.g., *The ePortfolio and HRD Policy Goals* (Barker, 2003) available at [Hwww.FuturEd.com](http://www.FuturEd.com)

⁹ *Employee Training: An International Perspective* (Kapsalis, 1997), p. 9.

OECD has concluded that improvements to the systems of human capital acquisition, measurement, accounting and valuation are key factors in helping a nation's firms to compete in the globalized economy. "Investment in education and training helps form the human capital – the skills and abilities – that is a vital element in assuring economic growth and individual advancement and reducing inequality. It is an important element in combating unemployment and social exclusion."¹⁰

Human Capital in the Knowledge-based Economy

In the Knowledge-based Economy, simple capitalism is replaced by intellectual capitalism.¹¹ Stewart says: "Thinking and invention are the assets upon which knowledge work and knowledge companies depend....The question for companies is how to acquire as much human capital as they can use profitably. Human capital grows two ways: when the organization uses more of what people know and when more people know more stuff that is useful for the organization. The ePortfolio is a means by which organizations can assess what people know and can do, i.e., the intellectual or human capital assets, and then use it to maximum advantage. "To use more of what people know, companies need to create opportunities for private knowledge to be made public and tacit knowledge to be made explicit." Clearly, the first step is to inventory the private knowledge and tacit knowledge that individuals hold. Interestingly, Stewart notes that the paradox is that, when individuals are able to capture for themselves almost all the value of their human capital, they often become independent contractors.

HCA to Promote Lifelong Learning

The concept of HCA is related to lifelong learning and the need to develop a lifelong learning culture. On the one hand, HCA addresses the challenge to the reliance on credentials for employment and advancement. There is a growing body of literature about rampant credentialism and the dubious utility of some academic credentials. The OECD acknowledges that "usually education certificates are used to measure actual competencies, but these achievement certificates are imprecise at best."¹² The OECD foresees a situation where "any new investment in learning will be undertaken with more attention to type, method and content. In other words, quality of education will be more important than quantity."¹³ The ePortfolio facilitates, perhaps encourages, the acquisition and recognition of skills and knowledge outside the formal credential-acquisition system.

¹⁰ *Counting Human Capital* (Healy, 1998).

¹¹ *Brain Power: Who Owns It...How They Profit From It.* (Stewart, 1997) at [Hhttp://www.pathfinder.com/@@VMxyFQcAT*x9@7yn/fortune/1997/970317/cap.html](http://www.pathfinder.com/@@VMxyFQcAT*x9@7yn/fortune/1997/970317/cap.html)

¹² *Measuring What People Know: Human Capital Accounting for the Knowledge Economy* (OECD, 1996); p. 20.

¹³ *Redefining Tertiary Education* (Wagner, 1998) at [Hhttp://www.oecd.org/publications/observer/214/article4-eng.htm](http://www.oecd.org/publications/observer/214/article4-eng.htm)

On the other hand, while individuals, indeed all of society, are urged to adopt lifelong and life-wide learning, there is an acknowledged lack of incentives other than formal credentials. The OECD asserts that individuals need to be able to see their investments in skill formation as a lifelong commitment to building assets. It has been hypothesized that an ePortfolio, by accurately reflecting an individual's acquired skills and knowledge, could increase access to training, appropriate employment and/or career advancement – ostensibly incentives for some.

Fundamentally, the most basic incentive is lacking: acquired skills are not considered to be assets by banks. The OECD poses the rhetorical question: “in capital markets, will banks and other lenders recognize human capital stocks and acquisition in ways that reflect asset values?” The current answer is “no;” and fewer adults are willing to invest in human capital acquisition – e.g., advanced degrees – when other investments are considered to be tangible assets. As noted by the OECD, the continuing emphasis on lifelong learning reinforces the need to reform the information and decision-making mechanisms that determine learning acquisition choices. They recommend that “reforms should take into account, for individuals, their lifetime pattern of investment in human capital, and for institutions, the existence of multiple distinct learning pathways and the need for mobility and linkages between them.”¹⁴

HCA to Promote Return-on-Investment

The concept of HCA is also directly related to “return-on-investment” (ROI) in education and training, and education/training reform. The OECD notes that it is common practice in most countries, industries and firms to make budgetary decisions on funding for compulsory schooling based on the assumption that the social and economic benefits outweigh the costs; however, in many areas, the requirements of the knowledge-based economy increase the pressure to improve the effectiveness and efficiency of human capital formulation. It is concluded that “a variety of problems are posed by the predominant methods for assessing human capital that are geared to the needs of an education system that extracts fees by controlling credentials as opposed to a system where the output potential of human capital is measured on the basis of competence to produce regardless of how much knowledge was acquired.”¹⁵

Further to that, “one of the obstacles to measuring the output potential of human capital is the segmented and oligopolistic character of educational and professional certification... rooted in the historical power of universities, guilds and professions to forbid the utilization of acquired competences without certification...largely explained as ways of extracting rents from investors in human capital. The traditional state-sanctioned assertion of property rights over the knowledge acquired when people invest in human capital is one way of resolving the paradox of knowledge as a public good and as inalienable

¹⁴ OECD, 1996; p. 73.

¹⁵ OECD, 1996; p. 47.

from the person in whom it is embodied.” At the heart of this paradox is the reality that human capital must be embodied in humans while rents that accrue from the utilization of that knowledge in production must be shared in order to finance learning institutions. The OECD is clear that new forms of human capital accounting are needed in order to increase return on investment in human capital formation.¹⁶

HCA and the Assessment of Acquired Learning

The link between HCA and ROI leads to the connection between HCA, Prior Learning Assessment (PLA)¹⁷ and learning records. According to the OECD, PLA offers to individuals reduced risk of investing in human capital. For firms, it makes HCA simpler and less expensive. For governments, there is the incentive of more efficient expenditure allocation during times of fiscal pressure. PLA “renders knowledge acquisition methods neutral,” giving all forms of learning equal chances at being validated.¹⁸ Imbedded within HCA, PLA has the general impact of reducing the transaction costs both for individuals seeking to invest in human capital or enter into a contract to rent their skills and for the firm’s internal and external labour market decision making.

Using PLA to reduce the cost and duration of incremental human capital investments relative to an individuals existing asset base is a contribution to efficient allocation of individual resources and an investment incentive that reflects rates of return to recurrent education. To reap the benefits of PLA and human resources accounting practices, the OECD asserts that the state should:¹⁹

- ↓# strengthen market valuation of training and competences, develop a system for measuring competences designed to favour modular and continuing learning, and “reduce the lumpiness of investment imposed by the current certification system”,²⁰
- ↓# encourage and/or capitalize firms to collateralize and amortize knowledge;
- ↓# give clear title to well-defined competences through universal institutions for assessment and broadly recognized mechanisms for financial accounting;
- ↓# generate transparency in labour contracting by revealing employee assets and employer benefits;
- ↓# validate alternative learning acquisition.

Based on the work of Drucker and Reich, the OECD concludes that individuals, firms and governments are making choices and using resources to invest in the acquisition of human capital based on signals or

¹⁶ Human Capital Investment: An International Comparison. (OECD, 1998)

¹⁷ Different terms are used to capture the notion of the assessment of non-formal and informal learning.: Prior Learning Assessment, Prior Learning Assessment and Recognition (PLAR), Recognition of Prior Learning (RPL)>

¹⁸ OECD, 1996; p. 82.

¹⁹ Ibid., p. 83-84.

²⁰ Ibid., p. 82.

institutions developed under significantly different economic conditions; and that it might be useful for them all to consider the role of improvements to the financial accounting and reporting of training and labour force qualifications as an innovative, supportive or even alternative method of enhancing active labour market policies. They should consider new institutions and regulations that (1) improve the transparency and certainty with which human capital is valued for all new members of the labour market, and (2) establish the collective parameters and guard the general interest when it comes to defining competences, assessment methods and recording conventions based on processes that are simultaneously inclusive, decentralized, and based on a common general framework.²¹ “Measuring and recording competence acquisition, in order to improve human capital information and decision-making, requires the development of low cost, universally accepted, and labour market relevant systems for defining and assessing knowledge acquired for use in the workplace. They need to (1) accommodate entry-level as well as adult learners; and (2) balance the competing interests of employers, employees, educators, professional associations, citizens, equity-seeking groups, and different regions.

HCA and the Future of Labour Relations

The concepts of HCA and the ePortfolio are also related to labour law, the challenge being to apply contract law to investments in human capital. For example, a firm may be encouraged or required to invest in training, but the reciprocal obligation of the employee to acquire additional human capital is not equally enforceable. The question is posed: “will firms negotiate contracts that recognize the achieved and validated competence assets of workers?” The OECD concludes that a method of overcoming this problem is to provide market type incentives to labour by attaching value to the acquisition of human capital, i.e., by enabling both employers and employees to internalize the costs and benefits of investment in human capital acquisition.

In this respect, HCA and electronic learning records are also linked to the new forms of accounting for production and consumption, e.g., the United Nations Human Progress Indicators and the assessment of women’s unpaid work. Since most OECD countries do not provide formal recognition of human capital as an asset in financial accounting and reporting systems at any level, individuals find it difficult to establish readily accepted records of the asset value of their skills beyond the conventional certificates of human capital acquisition.²² It has been argued that the measurement of human capital is untenable because human-embodied knowledge is non-physical, non-appropriable, unmeasurable, and inherently incompatible with the conventions and institutions that guide the day-to-day transactions recorded by financial accounting and reporting. However, human capital is an asset – an economic resource

²¹ Ibid., p. 81.

²² Ibid., p. 39.

controlled by the entity with an objectively measurable acquisition cost – by the following four accounting condition.²³

- ↓# It is measurable by the output potential of specific competences and is, therefore, predictable.
- ↓# The fruits of investment in human capital can be appropriated by the investor as they accrue.
- ↓# The cost of buying or “renting” can be objectively determinable.
- ↓# Day-to-day transactions recognize estimates of the value of the output potential of human capital investments.

The concept of an ePortfolio is congruent with what the OECD set out as one of three means of measuring human capital.²⁴ testing people for their competencies. A second means is to look at the cost of acquisition of certified knowledge; however, “in most countries, a large proportion of diplomas, degrees and other certificates are fairly general in nature and often fail to provide any precise assurance of particular competences.”²⁵ A third means involves estimating productivity based on such achievement indicators as personal income, job security, occupational status, and past references; however, this depends on the flawed assumption that competence is accurately reflected by labour market status. The OECD concluded that not enough consideration had been given to the first measure and that “without a sanctioned or generally accepted financial record, the costs and benefits of human capital acquisition and utilization cannot become fully transparent and predictable elements of monetary transaction-based information and decision-making systems.”²⁶

Issues of Measurement and Validation of Learning

Validation of competences is the most crucial issue. “Without adequate measures of acquired competence, there is little incentive for individuals or firms to collect or develop high quality human capital information... and without practical recognition of human capital as an asset, there is little incentive to establish even inexpensive high quality systems for the identification and validation of competences.”²⁷ This means that, in part, efforts to implement PLAR and occupational skill standards must be accompanied by efforts to implement human resources accounting or they serve to perpetuate the status quo in training than to promote the necessary changes for the knowledge-based economy. In aid of developing adequate measures, an Austrian scholar has proposed that “measures should on the one hand be thoroughly researched but on the other hand immediately at management’s disposition. They should be easy to remember and few, in order to be an applicable controlling tool and at the same time reflect the whole body of new theories on organizational learning, knowledge management and value

²³ Ibid., p. 44.

²⁴ Ibid., p. 21.

²⁵ *Education and the Economy in A Changing Society* (OECD, 1989); p. 34-35.

²⁶ OECD, 1996; p. 37.

²⁷ Ibid., p. 51.

generation. They should be as reliable and unbiased as possible and still predict future success based on soft factors such as culture and stakeholder satisfaction. Last but not least, they should be accessible without high administrative costs and suited to provoke decisions that lead to higher profits.”²⁸

In this regard, HCA is related to reforms in assessment processes. Traditional assessment has been limited, e.g., to norm-referenced, standardized tests; and new forms of assessment include authentic, embedded, competency-based, standards-based and/or “alternative” assessments. Competence-based assessment, a fundamental of human resources accounting, provides a framework for adult learning and reflects a shift in the workplace away from the simple connection between the well-defined, stable skills required for production in the manufacturing era and the cognitive / behavioural competences instilled by the compulsory educational system. In all OECD countries, there is a trend towards more socially organized and explicit systems for recognizing acquired competences, as reflected by the PLA literature. As well, there seems to be general recognition of the need to improve incentive structures surrounding human capital investment and utilization.

Implementation of HCA and the ePortfolio

To implement HCA and an ePortfolio system, a nation-wide effort may be required. The OECD notes that firms do not have the capabilities or financial means to pursue assessments that are often imprecise or expensive; nor do they have the negotiating experience to allow them to enter into contracts that explicitly validate the estimated value to the firm of a person’s acquired skills. “In the absence of nation-wide efforts to establish appropriate and affordable human capital information and decision-making systems, firms are unable or unwilling to develop such systems on their own are likely to suffer from lower productivity growth and reduced ability to compete because they will be less effective and efficient in acquiring and using human-embodied knowledge.”²⁹ To this end, the OECD acknowledged PLA as a most promising area of innovation, referring to it as “achievement-based evaluation of human capital accumulation.” They note that “explicitly negotiated and transparent links between competence validation and market validation have not yet been made; however...there is a new and growing potential to turn measurement into valuation as new active labour market policies are combined with reform of educational financing and closer ties between learning institutions and the workplace.”³⁰

²⁸ *The Austrian Approach to the Measurement of Intellectual Potential* (Schneider, 1999) at [Hhttp://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html](http://users.austro.net/measuring-ip/OPapSchneider/theoreticalframework.html)

²⁹ OECD, 1996; p. 54.

³⁰ *Ibid.*, p. 59.

SELECTED REFERENCES

- Assiter, A., & Shaw, E. (eds.) (1993). *Using Records Of Achievement In Higher Education*. London: Kogan Page.
- Canadian Labour Force Development Board. (February 1997). *Skills and Knowledge Profile (SKP) Research Project: A Consultation Workplan*. Ottawa: author.
- Canadian Labour Force Development Board. (July 1996). *Improving Training And Access To Employment Through Prior Learning Assessment And Recognition*. Ottawa: author.
- Canadian Labour Force Development Board. (May 1996). *Putting The Pieces Together: STEP II. Toward A Coherent Labour Market Information System*. Ottawa: author.
- Dunn, W. (1981). *Public Policy Analysis*. Englewood Cliffs: Prentice Hall.
- Healy, T. (1998). *Counting Human Capital*. Paris: OECD, Centre for Educational Research and Innovation. At http://www.oecd.org/publications/observer/212/Article8_eng.htm
- Kapsalis, C. (1997). *Employee Training: An International Perspective*. Ottawa: Statistics Canada and Human Resources Development Canada.
- Nair, M. (1998). *People Asset*. At <http://www.headstartexpress.com/story89.htm>.
- Office of Technology Assessment. (1992). *Global Standards: Building Blocks For The Future*. Washington, DC: Congress of the United States.
- Organization for Economic Co-operation and Development. (1998). *Human Capital Investment: An International Comparison*. Paris: OECD, Centre for Educational Research and Innovation.
- Organization for Economic Co-operation and Development. (1996). *Measuring What People Know: Human Capital Accounting for the Knowledge Economy*. Paris: OECD, Centre for Educational Research and Innovation.
- Policy Research Initiative. (1996). *Report on Growth, Human Development and Social Cohesion Report*. Ottawa: Policy Research Secretariat. At http://policyresearch.schoolnet.ca/keydocs/oct96rep/07_market-e.htm
- Scheffman, D. and W. R. Thompson. (1998). Bright Ideas, Big Money, Part 1. At <http://www.interaccess.com/rtg/scholars/articles/bright-ideas1.html>.
- Sturman, L. (1997). Human Capital and Economic Growth: A Survey of Some Existing Literature. Syracuse, NY: Syracuse University. At www-cpr.maxwell.syr.edu/~lsturman/hkdone.htm
- Wagner, A. (1998). *Redefining Tertiary Education*. Paris: OECD Directorate for Education, Employment, Labour and Social Affairs.



Margaret Chistopoulos, UFI/LearnDirect - *The learndirect toolkit for managing learning*

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Introduction

Ufi/**learndirect** has developed the **learndirect** learner toolkit, a set of learning management and portfolio-related tools to assist learners in planning, managing and reflecting upon their lifelong learning, and in recording and submitting evidence of their achievements for assessment towards nationally-recognised qualifications. Prominent in this work is consideration of needs of Skills for Life (SfL) learners, those with low level skills in literacy, numeracy or English Language communication.

This paper describes the research and development of the **learndirect** learner toolkit, the expected benefits from its use, its future development and issues relating to the needs of SfL learners in particular.

The learndirect context

Ufi Ltd, which operates the range of **learndirect** networks and services, is the largest government-backed, supported e-learning network in the world. It was established in 1998 and offers 'any time, any place, any pace learning' for individual adults and businesses, with over 600 different learning packages mostly delivered and supported on-line. The learner can access his/her learning in one of 2,040 different learning venues, in England, Wales and Northern Ireland. The centres are sited in a wide range of 'lifestyle' locations but courses can be accessed from home or the workplace via the Internet.

Ufi Ltd's mission is to work with partners to boost people's employability, and organisations' productivity and competitiveness. A key objective for Ufi is to win over new and excluded learners.

Since becoming fully operational in 2000, Ufi/**learndirect** has delivered over 1.8 million courses to over 880,000 learners. Over 200,000 of these learners are classified as having 'Skills for Life' needs, i.e. they have low numeracy and/or literacy skills or English is not their first language.

A key aim for Ufi/**learndirect** is to provide an inclusive Learner Support Environment (LSE) designed to enable all learners to progress, irrespective of their educational background and familiarity with information technology (IT). The set of tools being developed to enable this is described as the **learndirect** learner toolkit. The toolkit is not a distinct ePortfolio, for use as a standalone facility, but is a range of portfolio-related functionality integrated transparently into the wider LSE. This functionality appears to the learner as a normal part of the process of learning, along with content delivery and the tracking of progress and achievement.

Development of the learner toolkit

The toolkit has been developed as part of a partnership, Building Opportunities through Workplace Learning, led by the Trades Union Congress (TUC). It is supported by European Social Funding (EQUAL, 2002/5). A fundamental aim of this project is to develop ICT frameworks which support learners with Skills for Life needs.

The development has followed an action research approach, covering both conceptual and developmental research with learners, tutors, Union Learning Reps (ULRs) and others, and has been based on the learning theories of Kolb (Kolb, 1984), referring to the four common learning styles: conceptual, reflective, action and pragmatic.

Skills for Life learners

In the UK, adult learners with low skills in literacy or numeracy or for whom English is a second language, are described as Skills for Life (SfL) learners. SfL learners form a heterogeneous group. For example, a highly qualified engineer may have low literacy skills. An estimated 7 million adults in the UK, or a quarter of the workforce, have never achieved recognised minimum standards in basic skills (Moser report 1999). In times of increasing use of new technology such adults can become marginalised and experience difficulties in maintaining employability .

SfL learners often lack confidence and some are unfamiliar with computers and IT jargon. However, they are well supported in the **learndirect** network by trained staff, both at the initial advice and guidance phase and also during their learning, where they have access to an online tutor, a dedicated messaging service, and a telephone helpline. Some SfL learners may require one to one support with online learning for a considerable time. The toolkit will offer additional support for the SfL learner. Research (Ufi, 2002/3) with SfL learners has indicated that they are highly enthusiastic about the new tools and likely to use them. Many do not have a curriculum vitae, nor a diary and welcomed the structured approach to the toolkit facilities.

An additional way in which a SfL learner can obtain help is from a mentor at work. Specialist ULRs provide appropriate support for their members at work who have SfL needs. A ULR may be able to negotiate with management for appropriate resources and additional learning programmes for such employees.

The **learndirect** ePortfolio solution: the learner toolkit

The **learndirect** toolkit consists of the following functions:

- the organiser
- calendar
- course notes
- my learning record,
- my own learning
- manage my evidence
- evidence for qualifications

The first five functions have recently been integrated into the **learndirect** Learner Support Environment (LSE), the remaining functions will be available to learners early 2004.

The learner toolkit aims to provide learner-owned online tools which can be used easily by the **learndirect** learner whilst undertaking learning.

The Initial toolkit facilities

The **organiser** is based on 5 key questions, which aim to help learners to reflect, to make sense of their learning, to plan ahead, and create a medium term life and career plan.

Where have I been?, Where am I now? Where do I want to go? How will I get there? What have I achieved on the way?

Research on the organiser indicated that the most useful times to use this tool are at change points experienced by the individual, for instance as a learner changes jobs. Some learners benefit from asking themselves these questions (either autonomously, or when prompted by tutors), others indicate that they would record their responses to the questions so that they can reflect and understand their actions later.

Two tools support action planning and shorter term activities: **my calendar** and **my learning record**. The calendar is automatically populated with the start and end dates of the learner's selected **learndirect** courses, however learners can enter other key dates, including non-**learndirect** activities. My learning record is an aide memoire which a learner can use on a sessional basis.

The '**course notes**' facility enables learners to take notes as they learn, including the facility for learners to cut and paste short sections of their course for later revision and reflection. The notes can be developed with tutor support and can be transferred to the planned evidence collection facility, manage my evidence.

The '**my own learning**' facility, can be used by learners to create and manage their own non-**learndirect** learning, for example "Learning more about Health and Safety in my job"

ePortfolio Assessment and lifelong learning transcript

The next phase in the development of the **learndirect** learner toolkit will be the introduction of functionality to allow for learners to submit portfolio evidence for assessment towards a limited range of qualifications. In future, Ufi intends to develop this facility into a permanent transcript of a learner's achievement, holding externally-validated records alongside personal information and the existing learning summary.

At present e-assessment is establishing a high profile within learning and skills policy in the UK. The recent government white paper on its skills strategy, '21st Century Ambitions: Realising Our Potential', contains commitments to increase the availability of online and ICT-based assessment and to pilot the use of an individual learner number to help track lifelong learning.

This functionality will be handled through the '**manage my evidence**' tool, which will support achievement of qualifications which are wholly or partially assessed through a portfolio of evidence produced by the learner. It will enable learners to gather and manage evidence for qualifications in a way which is integrated with the rest of their activities in the toolkit. Evidence will be taken directly from the 'course notes' facility, where the learner may not yet be considering an award, through to the 'manage my evidence' folder, where the evidence is being considered in relation to awards, through to an '**evidence for qualifications**' view, where evidence is gathered securely and reviewed for a specific award.

Manage my evidence will support tutors and assessors in the process of checking, assessing and working with learners around evidence for awards and to support external verifiers, working for awarding bodies, who will have a view of relevant material for individual learners, for quality assurance purposes.

Anticipated benefits for SfL learners of using the learner toolkit

Conceptual research (Ufi 2002/3) with SfL learners has indicated many possible benefits for individuals. The tools may profile short term and longer term benefits and a structure which will give support to lives in which some report there is little structure. The tools will encourage the development of new IT skills and competencies. All the new functions will enable a "clean sheet" approach in which learners need not be reminded of past failures. They will motivate learners to record progress, and support lifelong learning and employability and will encourage adults to be autonomous and take personal ownership of their learning, leading to a greater potential for inclusivity.

Conclusions

Important questions have been raised in the development of the toolkit:

- Should e-learning systems develop a separate, dedicated set of tools for SfL learners in order to avoid "dumbing down" a standard set by using simple language, concepts and unsophisticated IT? This proposition was rejected at an early stage of the toolkit's development for a number of reasons. SfL learners do not wish to be labelled as "different" and a number of good practice issues have been examined, for instance Ufi/**learndirect** considered that language should always be clear and accessible, and navigation be learner friendly and intuitive. Ufi/**learndirect** has aimed for universal inclusivity.
- Should learner support tools and ePortfolio services be embedded in the learning environment or independent of it? Some learner feedback indicates that learners are more likely to use tools that are easily accessible and link closely to their study habits. Thus the learner toolkit has been embedded into the **learndirect** LSE which should optimise usage.
- The development of e-learning support tools requires considerable investment of time and resources and could be seen as an act of faith. No matter how much initial research and testing

can be carried out, and in the case of the toolkit many field studies have been conducted, it will not be clear who will use the tools, how they will be used and what the final benefits will be to learners and others, until they are released and evaluated under operational conditions.

Other good practice issues have been addressed in the toolkit development. One is the importance of providing support materials for SfL tutors and others. Ufi/**learndirect** has attempted to support both SfL learners and their specialist tutors by developing specialist tutor and SfL learner resources. Another is the drive towards national and international standards for good practice. Ufi/**learndirect** has worked with others to shape standards for e support and for transfer of learner information (BS8426, BS8788).

In conclusion the learner toolkit is new, fundamentally different in concept and operation from many other ePortfolio developments. It focuses on disadvantaged learners, many of whom have not been autonomous learners. The toolkit aims to add significantly to their learning experiences and empower them to become more independent. Future research evidence will clarify precisely how these anticipated benefits are fulfilled.

References

1. Kolb D.A. (1984) Experiential learning. Englewood Cliffs. NJ: Prentice Hall
2. Ufi Ltd (2002/3) The **learndirect** organiser: Overview of Development Research and Consultation Unpublished Research
3. Moser C. (1999) Improving Literacy and Numeracy, a Fresh Start. The report of the working group chaired by Sir Claus Moser



The **learndirect** toolkit, future developments

- Full scale field research into the use of the toolkit
- Incremental change controls, based on research and practice
- Development of new functions, including the **learndirect** transcript



The toolkit: - issues for reflection

- Should there be separate e-tools for different groups of adult learners, is there one size that fits all?
- An embedded approach or a separate box for e-Portfolio type functions
- Will all SfL learners be able to use these tools?
- An act of faith?



The **learndirect** toolkit

Further information from:

- “The **learndirect** toolkit for managing learning” (conference paper)
- Margaret Christopoulos and Colin McDonald at...

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**Phil Cottam, City & Guilds UK –
*On Line assessment of Vocational Qualifications in
the UK***





On Line assessment of Vocational Qualifications in the UK

Phil Cottam
National Chief Verifier
City & Guilds UK



Why

- The endless paper chase
- Because the present paper system will be overtaken by Technology
- Develop an E portfolio within an assessment management structure.
- **But making the change brings many other challenges.**



Back to the past

- **Learner** "I have no idea when I will qualify or how much more work is required."
- **Assessor** "I am so stressed, just to keep up with the audit, I don't know how much evidence is missing".
- **Manager** "I had no idea that verification has not occurred".



Why Develop a System

- **Learner** To something which told me how much I have to do and how this can be done.
- **Assessor** To provide information without effort and help the learner qualify without delay
- **Manager** To have increased quality as standard and to be cost efficient by telling me where resources are required




Developmental Principles

- Provide clarity on work completed and real time reporting to the learner.
- Change the way in which NVQs are assessed and verified, thereby enabling centres to be confident of success.
- Significantly reduce verification costs while ensuring improvements in quality.




Developmental Principles


- Clearly state full evidence requirements and measure activity against them
- Provide remote sampling which will enable EV assurance of valued activity
- Encourage an interactive visible process which builds confidence with the assessor and learner




Who is the system for



- The Learner, above all, its their work and for the future, a continuing record of competence achieved over time.
- The centre because the structure of the system is also a record of the quality of assessment in the centre
- The employer who can view the progress of all staff and identify skills gaps



Connecting with others in the learning community



- Opportunity for all to view the process
- All involved have live reports on actual progress
- The ability to identify problem areas of assessment
- Time taken to assess is reduced by 50%
- What about confidentiality and security



What evidence



- How do you know its authentic
- Allow all file types and do not limit file size
- Digital audio recording of observation coupled with visual files
- Digital video of candidates at work
- What about real product evidence/ reference



Assessment Management



- Identify assessments that have been made
- Identify the gaps in the portfolio
- When is future assessment planned
- Where is evidence valid for other units
APL / Holistic assessment process
- What is the impact on assessors



Tracking and Verification



- How do you deal with volume of information
- Ensure that the assessment is automatically tracked
- Compare the track with assessment performance and detail gaps



Verification Management



- Awarding bodies use of the system
- Manage verifiers practice
- Enable Verifiers to remotely sample work from the centre.
- Reduce costs and expenses in assessment
- Provide a cost effective process for small centres



Technology Needs



- The Ability to add all file types.
- The need to integrate with MIS and VLE systems
- To be capable of continued further development through standards
- To allow multiple site use through common browser activity



Technical Skills for Users



- Common IT skills
- In time the ability to mix file types as evidence and understand what is appropriate
- So not a great deal
- Fear of change??



Quality Control



- Sampling strategies
- Multiple choices for samples
- How do we assure quality in the system
- How can we be sure about the evidence value



Change Management



- There is fear of the unknown
- What if the evidence is lost
- I like my paper and don't want to change



Continuing Development



- Moves towards interoperability are vital
- Web Cam technology reduces distance
- VLE and MLE integration
- Awarding Body MIS system.

Theresa Correia, John Cunningham, Scottish Enterprise Lanarkshire – *The ePortfolio Supporting Economic Development*

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Background

Scottish Enterprise Lanarkshire is the organisation responsible for promoting long-term sustainable economic development in Lanarkshire. It has, in conjunction with local partners (local Authorities, Health Board etc.), responsibility for developing an economic strategy for the region and one of the key aims of their strategy is "Developing the Workforce."

There has never been a time when the need for a highly skilled workforce was greater. The speed of rapid change, a key feature of the Knowledge Economy, demands that to survive businesses need to be able to respond quickly to change. To enable them to do this they need access to flexible education and training for their workforce.

In Scotland, Modern Apprenticeships provide employers with a work based training option to further and higher education for their young employees. A Modern Apprenticeship is a structured programme of learning based on "frameworks" developed by Sector Skills Councils in conjunction with their sector employers and as such are recognised and welcomed by them as an ideal route to gaining the well qualified employees they need to complete, today and in the future. This places Modern Apprenticeships at the heart of workforce development in Scotland.

Currently, Individuals undertaking a Modern Apprenticeship will undergo initial skills assessment from which a training plan is developed setting out the individual's training needs. This is normally done on a one-to-one basis with a learning provider. The required training will then be delivered both on and off the job. Off the job training will usually require attendance at a college or training centre on a day release or block basis. On the job training is provided in the work place and is evidenced by portfolio building. In Scotland, Modern Apprenticeships are funded through the Local Enterprise Companies, and the public sector funding aspect adds a layer of bureaucracy to the delivery.

To improve flexibility, Scottish Enterprise Lanarkshire (SEL), undertook a pilot project, looking at how internet technology could be used to develop and test a model for the online delivery of Modern Apprenticeships. The project explored how the internet, could be used to develop a solution that provides flexible, convenient and fast access to training at a time and place convenient to apprentices and employers, helping companies remain competitive. It also explored how technology could be used to support and manage the work based training element so far as portfolio building and communications were concerned.

In an effort to reduce bureaucracy the project also looked at system integration issues with regard to registration with the multiple agencies involved and the automated draw down of funding.

In addition, the project considered the work currently being done on the development of e-learning standards and took cognisance of this work in the design and development of a model to ensure that the content and infrastructure solution developed was as flexible as possible.

Objectives

The overall aim of the project was to develop and test a model for the online delivery of Modern Apprenticeships. The direct objectives of the project were to:

- Identify and select an appropriate Modern Apprenticeship for online development
- Identify appropriate underpinning knowledge content
- Develop underpinning knowledge content for online delivery tagged to emerging e-learning standards
- Develop an online portfolio tagged to emerging e-learning standards
- Identify and utilise existing standards compliant MS/LCMS to manage online content and learners
- Identify system integration opportunities with the multiple agencies involved

Summary of Results

The project developed a model where, skills assessment is done on a one to one basis. System interfaces were created that provided **one point of registration** with the funding, accreditation and awarding bodies. Instead of attendance at a college or training centre, the project took relevant underpinning knowledge content and developed effective interactive training content. The content is delivered via the internet to the candidate in their place of work, using existing Learner Management Systems (LMS), accessed from within the online MA system via an Icon. So far as the on the job training is concerned, an online MA system replaces the paper based portfolio system and handles online evidence submission, assessment and verification. In addition, it **automatically triggers accreditation on completion and all payment claims** at appropriate milestones. Communication with tutor and peers and among candidates, assessors and verifiers is done via email.

- ∅ The system interfaces between the ePortfolio and the funding, accreditation and awarding bodies allows one point of registration, thereby reducing duplication of information entry significantly from three forms to one per candidate.
- ∅ The system interfaces between the ePortfolio and SEs funding system allows milestone payment claims to be automatically triggered at various stages throughout the candidates' training at sign-off of payment elements. Since there can be any many as eight payment claims for one candidate, the automation of this process reduces the work and time involved considerably for learning providers.
- ∅ The ePortfolio supports the online management and gathering of evidence for competence. Along with a number of other benefits users can upload/input evidence and map it across to the relevant standard. Assessors can mark any item as complete and internal verifiers can provide feedback to assessors on portfolios online.
- ∅ Tagging the underpinning knowledge content to emerging e-learning standards facilitates interoperability and ensures that the content can be delivered from any standards compliant LMS/LCMS. Within this project, this has enabled the same content to be delivered from two different systems, Sufi's SkillNET and Granada's Learnwise system from within ePortfolio by clicking on the relevant icon.

From an economic development standpoint the ePortfolio allows us to address a number of issues relating to skills development in Scotland, for example:

The use of an ePortfolio to support work based training and the delivery of the underpinning knowledge content online, allows companies and individuals to better fit their training needs around the demands of their business. This will help to improve a company's competitiveness and thereby provide sustainable employment for the individuals.

The interface work of the project is extremely important and extending this work to include other accreditation and awarding bodies, learning providers and employers, will enable Scottish Enterprise to achieve a balance between the need to reduce the burden of bureaucracy for our suppliers and at the same time allow us to retain clear public accountability. The reduction of bureaucracy should encourage more learning providers to make available more Modern Apprenticeships, increasing the number and variety of modern apprenticeships on offer to employers.

Since availability of Modern Apprenticeships for employers is limited by local provision, delivery online using an ePortfolio also widens access for employers and has the potential to extend the suppliers' market within their own area and beyond.

There is a lack of take up of Modern Apprenticeships in rural areas because of the limited range of provision available and the geographic difficulties of accessing that provision. The use of an ePortfolio can extend provision in rural communities and improve the employment prospects within them, thereby improving the rural economy.

The approach of ensuring that the ePortfolio and online content were developed in line with emerging e-learning standards add value to the investment in development by allowing the suppliers and consumers to reuse the content which should in turn reduce time and cost of content development in future. In addition, the companies involved in the development of the ePortfolio and online content gained valuable knowledge and experience in the area of e-learning standards which will allow them to capitalise on market opportunities that arise in this area in the future.

Conclusions

The Modern Apprenticeship online project has developed a model, based on the ePortfolio that, if adopted as a Scottish model, can be used to drive the strategic development on online Modern Apprenticeships in Scotland. Although, online learning is increasing in a number of areas in Scotland that is not the case in the area of Modern Apprenticeships. This gives Scottish Enterprise the opportunity to develop, in conjunction with their stakeholders, a strategic approach to the online delivery of Modern Apprenticeships that will help increase the skills base of the Scottish economy.

The primary driver of this project was to develop and test a model for the online delivery of Modern Apprenticeships to inform future development work in this area and central to this was the ePortfolio. It is important for us to build on this in the future by ensuring that our skills interventions extend the interface work, already undertaken, to include other accreditation and awarding bodies, learning providers and employers and with other ePortfolios. By encouraging the development of more online underpinning knowledge content in sectors considered key to the Scottish economy and finally, by ensuring that any economic interventions that involve online content/systems/portfolio development, adopt, where possible, the emerging e-learning standards.

This will give Scottish companies and their employees' access to a wider range of training opportunities that can be delivered flexibly, helping them to remain competitive in today's economy.

Poitiers 9-10 October 2003

**Julanna Gilbert, University of Denver –
*The University of Denver Portfolio Community***

Campuses committed to electronic portfolios: Using different approaches.

The University of Denver Portfolio Community

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Director Center for Teaching and Learning

Jeff Rutenbeck, Associate Professor
School of Communication
Director of Digital Media Studies

Paul Ross
Manager Faculty Technology Center

Sheila Summers-Thompson, PhD
Director Office of Assessment

University of Denver

- Private institution founded in 1864
- 400 regular faculty
- 10,000 students
 - 4000 undergraduates
 - Graduate programs
 - Professional schools (Law, Psychology, Social Work)
 - University College (adult learning)
 - The Women's College
 - Rick's Center (K-8), University High School (9-12)

Electronic Portfolios – DU Goals

- Available to ALL members of the DU community
- Easy to use - showcase accomplishments and ideas
- Augment learning activities across disciplines
- Improve student learning in measurable ways
- Integrate with existing web systems on campus
- Google-able!

Build community around shared interests
The University of Denver Portfolio Community
(DUPC)

The Evolution of DUPC

- 2000 - Concept developed by School of Communication faculty team (\$230,000 grant from the Sturm Family Foundation)
- 2001 – Prototypes developed for Communication, English
- 2002 - Project moved to DU's Center for Teaching & Learning
 - more academic units
 - more in-house support (people and funds)
 - Faculty Electronic Portfolio Committee created to provide strong faculty oversight
- September 2002 – DUPC launched
- July 2003 – 2500 users, 10,000 objects, eight academic units, and growing

DUPC

A web-based application that supports a wide range of academic uses within the university.

Two primary components:

- Portfolios for individuals, courses, communities
- Faculty-managed program/student assessment

DUPC Portfolio Component

- User-centric
 - Easy to set up and maintain
 - Portfolio owner controls & manages the content and how the content is shared
- Community capabilities
 - Expands communication beyond individual courses
 - Invites participation by people from outside of DU
- Complies with FERPA and with DU's privacy & intellectual property guidelines

Portfolio Showcase

- *Editing a Portfolio*
- *Student Portfolios*
- *Staff & Faculty Portfolios*
- *Searching Portfolios*

DUPC Assessment Component

- Supports online assessment of student work
- Contains a rubric library and rubric builder
- Provides powerful reporting tools
- Allows for extensive assessment management functionality
- Is secure and separate from portfolio component

DUPC Assessment Process

Faculty group meets with the Office of Assessment to develop an assessment strategy for their program

Faculty group meets with CTL staff for implementation using DUPC

- Set up & test rubrics, students, assessors, courses, types of student work, etc.
- Apply rubrics in pilot project, revise/refine rubrics
- Report Results

Funds available to support faculty in this process

Assessment Showcase

- *Different Roles*
- *Student View*
 - *Assessed Courses & Submission Process*
- *Assessor View*
 - *Object to Assess*
 - *Split Screen View*
 - *Completed Assessment*
- *Group Manager Functions*
- *Assessment Compliance*

Student View



Student View – Upload for Assessment



Student View – Uploading the Item to Assess



Student View – Uploading continued



Assessment Showcase

- *Different Roles*
- *Student View*
 - *Assessed Courses & Submission Process*
- *Assessor View*
 - *Object to Assess*
 - *Split Screen View*
 - *Completed Assessment*
- *Group Manager Functions*
- *Assessment Compliance*

Technical Information

- System fully integrated with the central campus administration system (SCT Banner)
- Hosted on campus (Sun)
- JSP/Tomcat based, Oracle backend, Jive community platform
- Nearly 300 screens
- Current capacity 10,000 users (no firm quotas)
- In-house development and support group located in DU's CTL

What's Next

- Expand features (including more user roles, additional file formats, etc.)
- Extend campus involvement (more academic units, career center, alumni office)
- Export portfolios as XML to CD or other systems (interoperability)
- Expand and improve searchability
- Collaboration with other institutions



Elizabeth Hartnell-Young, Melbourne University, Results Unlimited Pty Ltd – *ePortfolios for beginners: innovation and learning*

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Portfolios for lifelong learning

Lifelong learning has emerged as a concept addressing the speed of societal change. It requires that students, teachers and the wider community have opportunities to continue their learning and development at any age. Lifelong learners are generally said to be reflective and self-directed, active investigators and problem-solvers, and effective communicators. They are social and collaborative, acting interdependently with others. In this context, portfolios (structured, reflective collections of evidence for a purpose) are useful tools for learning with and through computers — emphasising production rather than consumption of technology — and vehicles for communication and sharing of knowledge.

In the late 20th century many teachers were confronted with the need to learn how to use the computers that were appearing in their schools. In Victoria, Australia, the state government promoted the use of computers for teaching and administrative purposes, and offered all teachers a subsidised laptop computer for their professional and personal use. For some, this provided the access they needed to explore and learn the enabling (and constraining) features of technology. Some were happy to learn with and through computers at the same time as their students, and in many cases, from their students. But for others, the introduction of computers was a serious challenge. Some were convinced that they needed to know how to use computers before introducing them into class activities. Given the average age of teachers (late forties) most had completed their teacher education before computers became widely available, and some had reached a late-career stalemate. Professional development was required!

Various studies have found that effective professional development includes aspects of reflective practice (Dexter, Anderson and Becker, 1999), situated learning (Brown, Collins and Duguid 1989) and long-term collegial interaction (Lieberman & Miller, 2001; Sandholtz, Ringstaff, & Dwyer, 1996). Other emerging themes include the importance of connecting teacher and student learning, encouraging the development of a common language and using structured tools and protocols to guide discussion (Lieberman & Miller, 2001). Darling-Hammond and McLaughlin (1996) suggest that effective professional development must be experiential, grounded in inquiry, reflection and experimentation, collaborative and sustained. It seemed likely then that teachers would increase their knowledge of technology and their computer skills if introduced to a purposeful vehicle for learning that met these requirements. As print-based portfolios were required in many schools for performance management and professional development planning, I decided to explore learning through the production of digital portfolios. And because a team is often better than an individual in creating and sustaining an innovation, and women were thought to be lagging in their use of computers, I offered women in my wide educational network the opportunity to become involved in the project which came to be known as [women@the cutting edge](http://women@the-cutting-edge.com).

After developing a team portfolio and preparing a prototype on CD Rom, we applied for funding to write and present a professional development program suitable for teachers and other adults. The subsequent learning processes that we engaged in have been documented elsewhere. (Hartnell-Young, 2001; also see www.cuttingedge.rmit.edu.au, www.results.aust.com) The model has been used and adapted for leadership and career development programs for school and university staff, and students are also being encouraged to produce

portfolios. However in some cases, the product – the portfolio – has overtaken the original intent: to enable purposeful learning with technology. This paper draws out just a few key points in our learning about portfolios, particularly related to purpose, processes and products.

Purposes of ePortfolios

A key learning from the “cutting edge” experience is that there are many portfolios for different purposes rather than a “one size fits all” approach, so the archive — the lifelong collection of items — is a most important element in developing portfolios. Having determined the purpose of a particular portfolio, a selection can be made from the items in the archive. Portfolios can support job applications, performance review and academic assessment for individuals, and they can be composite portfolios for purposes such as family history or team reflections. For corporations they can be marketing and knowledge management tools. The portfolio’s purpose guides design and structure as well as its content.

School students’ portfolios can display their personalities, share and create knowledge with peers, and communicate with parents. They can be containers for assessment tasks, and catalysts for deep teacher discussion about their practice. When teachers make time to view student portfolios at transition points such as between primary and secondary schooling, they get to know their new students better, and as a Principal suggested:

It's not going to cost much to burn a CD and send it off with the children to their schools, for their new teachers to have a look at what they've done and who they are, over the seven years.

Processes and products

Reflection is a key process, for without it, portfolios are merely collections of products without meaning. Teachers who reflect on their work and create professional portfolios are modelling learning practices for their students, and both groups find the process is as important as the product. One of the most important outcomes of establishing an archive and developing portfolios is the self-esteem that results from recording and reflecting, leading to further reflections like this, from a teacher who produced a portfolio:

At first I was disappointed that no one had taken the time to look at it. Then I realized that building my portfolio had been a professional growth experience that had made me focus on all my areas of strengths as a teacher.

As a model for professional development about technology, the “cutting edge” program incorporates opportunities to reflect on practice, celebrate achievement, and actively use computers and peripherals. It is presented in plain language by trained facilitators and coaches, who encourage learning through taking risks, allowing ample time for play. Evaluations show that this suits many learners, as one participant expressed:

I've enjoyed the hands-on discovery learning with a minimum of structure and techno-babble.

Through collecting and reflecting on material over time, portfolio developers — whether students or teachers — can take charge of their learning and development.

Production involves digitising materials, making design decisions and choosing an appropriate form for the audience. By sharing their knowledge with a range of learning communities, both face-to-face and on line, producers develop communication and technology skills and become more knowledgeable. The containers for digital portfolios in Victorian schools are generally those designed for targeted audiences (intranet, CD-Rom, laptop computer, videotape) rather than for broad access via the Internet. This means that the potential for knowledge building is limited to a local audience, but portfolios are more likely to remain up to date, while privacy and security concerns can be reduced.

Issues for ePortfolio developers

In spite of the many benefits in developing ePortfolios, there are several concerns, of which I will consider only three: time, ownership and longevity.

Time

There is no question that it takes time to collect and digitise material for an archive, select samples for a portfolio, reflect on chosen items in the particular context and prepare for presentation. If there are learning benefits at each stage, the time set aside is always worthwhile. Where portfolio development is integrated into normal working life, whether for teachers and students, there is a greater chance of successful outcomes.

Ownership and Control

Initially, questions of ownership relate to the use in a portfolio of any material created by others, photographs and videos of other people, and links to websites. Copyright and privacy laws differ in different countries, and portfolio producers should be aware of local requirements. At the broad scale, the benefits of portfolio development as a learning activity lie in it being driven by personal motivation rather than top-down, systemic decree. Portfolios could constrain lifelong learning if they become rigid containers devised by authorities on a large scale.

Long life

After the initial excitement of digitising paper-based materials, archivists are becoming increasingly concerned about the ephemeral nature of the products we are creating. If our major purposes for portfolios are as vehicles for lifelong learning, this is a cause for concern. The possible incompatibility of digital formats (think Beta video, Amiga computers) now and in the future means that paper-based backup archives could be important.

Outlook


Portfolios are works of hope in the grand scheme of lifelong learning. A teacher reflected after producing a digital portfolio over a year:

I saw the portfolio as a journey telling my story and highlighting what I could do, who I was as an individual.

Portfolios help people see, reflect on, value and share their life's work and experiences. Using technology enriches the possibilities of communicating with a wide audience, building knowledge on a global scale, and hopefully, increasing our understanding of our selves and each other.

Bibliography

- Brown, J., Collins, A., & Duguid, P. (1989). Situated Cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Darling-Hammond, L., & McLaughlin, M. (1996). Policies that Support Professional Development in an Era of Reform. In M. McLaughlin & I. Oberman (Eds.), *Teacher Learning: New Policies, New Practices* (pp. 202-218). New York: Teachers College Press.
- Dexter, S., Anderson, R., & Becker, H. (1999). Teachers' Views of Computers as Catalysts for Changes in Their Teaching Practice. *Journal of Computing in Education*, 31(3), 221-239.
- Hartnell-Young, E. (2001). Developing multimedia career portfolios in Australia: opportunities and obstacles. *Career Planning and Adult Development Journal*. 17 (3), 45-55.
- Hartnell-Young, E. and Morriss, M. (1999). Using portfolios as a vehicle for teacher professional development in technology — women@the cutting edge. In Linnakyla, P., Kankaanranta, M., and Bopry, J. (Eds). *Portfolioita verkossa /Portfolios on the web*. The Institute for Educational Research at the University of Jyväskylä, Finland.
- Hartnell-Young, E. (2000). Digital portfolios: more than a webpage. In *ICP Online*. The International Confederation of Principals. http://www.icponline.org/feature_articles/f2_00.htm
- Lieberman, A., & Miller, L. (Eds.). (2001). *Teachers Caught in the Action*. New York: Teachers College Press.
- Sandholtz, J., Ringstaff, C., & Dwyer, D. (1996). *Teaching with Technology: creating pupil-centred classrooms*. New York: Teachers College Press.




ePortfolios for beginners: innovation and learning



Elizabeth Hartnell-Young

Results Unlimited &

Dept of Information Systems, The University of Melbourne

- 
- Reflective and self-directed
 - Active investigators/problem-solvers
 - Effective communicators
 - Participants in an interdependent world
 - Knowledgeable, with deep understanding
 - Creative
 - Confident

Portfolios
support

lifelong
learning

Elizabeth Hartnell-Young

The importance of an Archive

“one size fits all” does
not apply to Portfolios

Elizabeth Hartnell-Young

Portfolios for students

- Display personality
- Demonstrate achievement and knowledge
- Share and create knowledge with peers
- Communicate with parents
- Support transition between schools
- Support career planning, course and job applications

Elizabeth Hartnell-Young

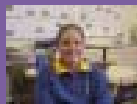
My Electronic Portfolio!

Year 7

By Jessica Miller

N.K.P.S in the year 2001

Elizabeth Hartnell-Young



Portfolios for teachers

- Reflect on professional practice
- Record achievements to support job applications
- Share professional knowledge & wisdom
- Enhance self-esteem
- Entertain the grandkids

Elizabeth Hartnell-Young

Portfolios for all

- Marketing
- Personal history
- Team reflection (work and pleasure)
- Knowledge management

Elizabeth Hartnell-Young

Portfolios support knowledge creation



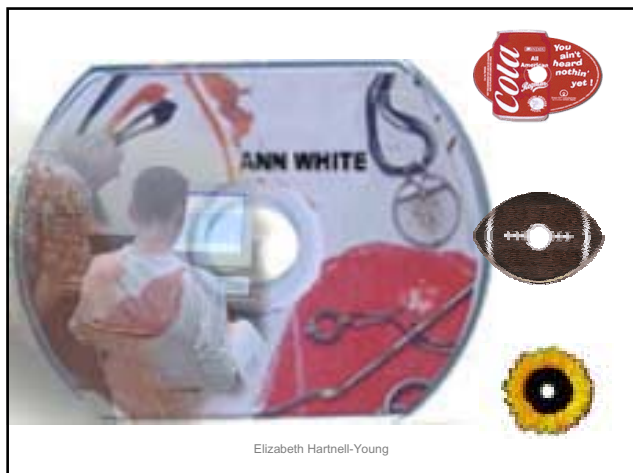
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women@ thecuttingedge

- Learning through technology
- Celebrating achievements
- Reflecting on process and product
- Enhancing self-esteem
- Sharing with others

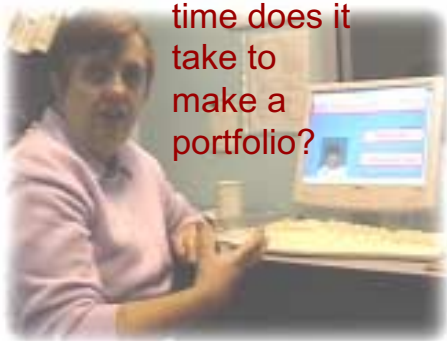


Elizabeth Hartnell-Young



Elizabeth Hartnell-Young

How much
time does it
take to
make a
portfolio?



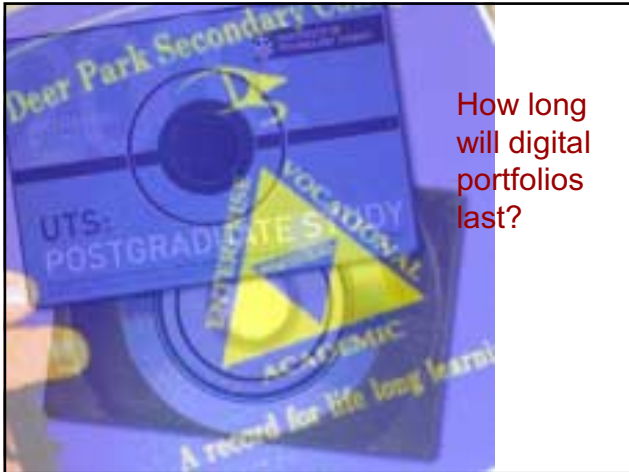
Elizabeth Hartnell-Young

Who should own the
portfolios?

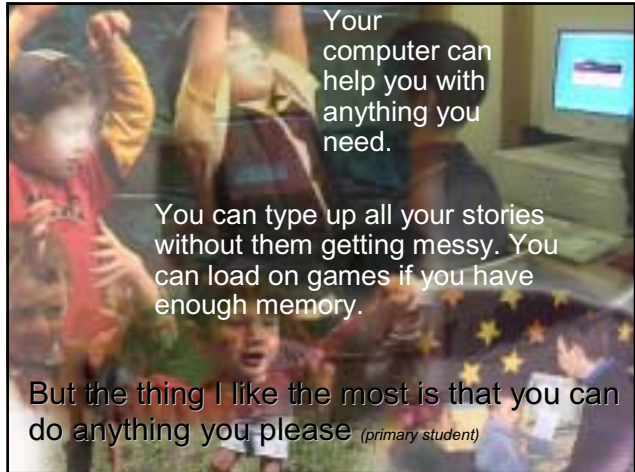


*Permission to use material in this presentation has been
obtained from teachers and parents/guardians.*

Elizabeth Hartnell-Young



How long will digital portfolios last?

A logo for 'the cutting edge' featuring a red sphere with a black outline and the word 'WOMEN' written vertically on the left side. Below the sphere is the text 'the cutting edge' with a small red circle to its left.

ehy@results.aust.com

Elizabeth Hartnell-Young

Alex Kemps – *ePortfolio at INHOLLAND University*

INHOLLAND University is an institute for higher professional education (hpe) in the Netherlands. It serves approximately 40,000 students in 15 Schools. Of every two students, one student studies an economic theme. Other main themes of study are education, communication, technology and health.

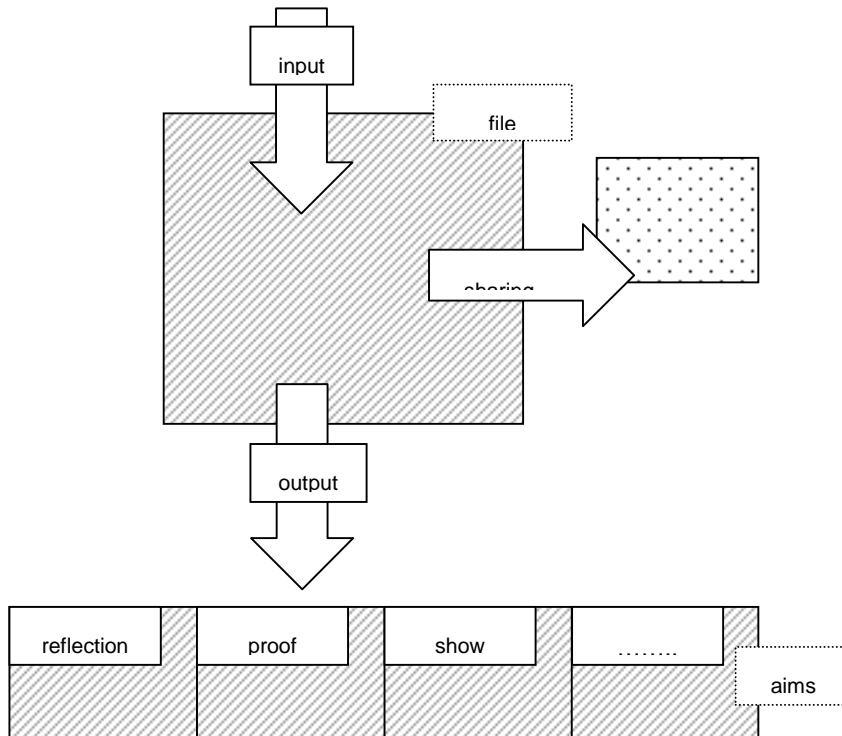
One choice for a educational concept and a portfolio system

In 2002 four institutes for hpe have merged to the largest institute for professional hpe in the Netherlands at this moment: INHOLLAND University (IHU). Every institute had developed an educational concept with aspects of problem based learning and competence based learning. And every institute did tests with several portfolio systems.

IHU created last year a new solid organisation and prepared the development of a new educational concept. IHU wants to emphasise the benefits of a large community. This summer a new educational concept of competence based learning has been established and will be implemented from september 2004 till september 2006.

In september 2003 all 15 Schools have introduced the digital learning environment Blackboard. And most recently, IHU has decided for the introduction in september 2004 of one digital portfolio system for all 15 Schools. This system has been developed by Digital University of the Netherlands. Characteristics of the system are student-ownership, the open structure and the possibilities of collaborating learning; see figure 1.

Figure 1: functionalities of the DU portfoliosystem



Competence based learning

Competence is the object of research in 'Competence: from complications to compromise', a 2002-publication of the Dutch Onderwijsraad⁴. The research team studied most definitions of competence and described six characteristics:

- competence is context-tied;
- competence is indivisible;
- competence changes in time;
- competence is tied at tasks and actions;
- learning processes and development processes are conditions for competence;
- there is consistency in competence.

These six characteristics of competence can be transferred into six dimensions of competence based learning (CBL): focus on profession, focus on integration, focus on sustainability, orientation on actions, feasible education and mutual dependence. Figure 2 shows the score of five educational settings in the Netherlands on these six dimensions.

Dimensions of CBL	SE	PE	HPE	AE	PS
Focus on profession	-	+	+/-	-	+
Focus on integration	-	-	+/-	+/-	+/-
Focus on sustainability	+	+/-	+/-	+	-
Orientation on actions	-	+	+/-	-	+

⁴ an advisory college of the Dutch Ministry of Education

Feasible education	+	+	+	+	+/-
Mutual dependence	-	-	+/-	+	+/-

Figure 2: Dimensions of competence based learning in secondary education (SE), professional education (PE), higher professional education (HPE), academic education (AE) and in professional situations (PO).

Professional education scores, compared to higher professional education, best on focus on profession and orientation on actions. In professional education CBL will mainly be focussed on specific competence and hardly on general competence. Academic education scores, compared to higher professional education, best on focus on sustainability and mutual dependence. In academic education CBL will mainly be focussed on general, academic, competence. Students in higher professional education will develop in both general as specific competence.

CBL in professional situations is focused on profession and actions. Secondary education is hardly focused on profession, integration, action and mutual dependence: secondary education is not competence based.

Backbone

The educational concept of INHOLLAND University: Backbone, can be characterised by the following themes:

- focus on general competence⁵;
- focus on specific professional competence;
- flexible programmes with a general basis of 50% of the programma, a profession-oriented specialisation (25%) and School-exceeding demand-oriented education (25%), see figure three;
- competence-based testing;
- study career accompaniment for all students.

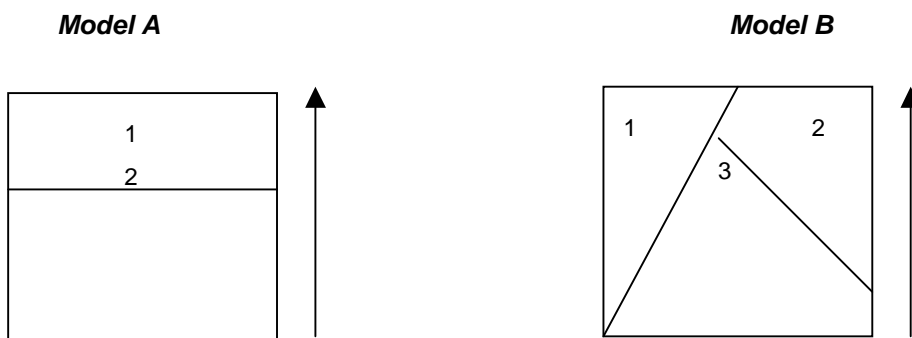


Figure 3: Towards flexible and demand-oriented education at INHOLLAND University: model A is the present situation with a single-route system (2) and possibilities for specialisation in de graduation-phase (1). Model B is according to the educational concept 'Backbone' with a 50% general basis (3), a 25% profession-oriented specialisation and 25% free to choose education: demand-oriented education (2).

Model A offers students one route to graduation. The education programm permits few subjects of study to choose. Model B is more suitable for student-oriented education. It offers students

⁵ Generally following the description of the 'Dublin descriptors' by the Dutch Validation Authority (NAO) for Bachelor- and Master-education.

several ways to make the study appropriate. According to Jan van Tartwijk⁶ this situation is much more appropriate in applying electronic portfolio's.

Aims of introducing the portfolio system

By the introduction of one portfolio system for 15 Schools IHU wants to support the realisation of the educational concept in:

1. facilitating coaching and assessment

IHU expects primarily use of portfolio to support study career accompaniment: coaching students in personal development and preparing them in handling demand-oriented education.

The introduction of Performance and Competence Management at IHU will help teachers in accompanying their students.

Portfolio-supported assessments are already being used in Schools of Education. When studyroutes develop more individual, IHU expects the other Schools to make use of the possibilities of portfolio-supported assessments.

2. supporting collaborated learning

When all students will be using the DU-portfolio system, IHU expects an increase of:

- exchange between students: by general consulting showcases;
- collaborated learning: discussion, peer-assessment and reflection;
- intervision: peer-coaching.

Teachers will encourage collaborating learning in educational settings. The Centre of Excellence Competence Based Learning will support them by training, setting up communities of practice and by publishing good practices.

⁶ Tartwijk, Jan van, e.a.; Werken met een elektronisch portfolio, oktober 2003.



One choice for CBL and portfolio



INHOLLAND University

- higher professional education;
- serves 40,000 students;
- at 15 Schools;
- 1 choice for Competence Based Learning;
- 1 choice for a digital portfolio system;
- implementation for all Schools starting September 2004.

2/45

CBL in Higher Professional Education



Dimensions of Competence Based Learning in secondary education, professional education, higher professional education, academic education and in professional situations.

Dimensions of CBL	SE	PE	HPE	AE	PS
Focus on profession	-	+	+/-	-	+
Focus on integration	-	-	+/-	+/-	+/-
Focus on sustainability	+	+/-	+/-	+	-
Orientation on actions	-	+	+/-	-	+
Feasible education	+	+	+	+	+/-
Mutual dependence	-	-	+/-	+	+/-

3/45

Characteristics of the educational concept



- focus on general and specific competence:
 - * general competence of higher education (Dublin);
 - * specific competence;
- flexible programmes:
 - * a general basis of 50% of the curriculum;
 - * a profession-oriented specialisation (25%);
 - * School-exceeding demand-oriented education (25%).
- one parallel route for implementing the Educational concept.

4/45

One choice for digital support



- September 2003: INHOLLAND University introduces one general system of a digital learning environment at all 15 Schools
- September 2003: INHOLLAND University makes a choice for one digital portfolio system
- September 2004: one digital portfolio system (Digital University of the Netherlands) at all 15 Schools

- * 2002-2003: pilot-testing of the system for technical problems
- * 2003-2004: transition year
- * 2004-2005: 1 portfolio system at all Schools

5/45

Aims of introducing the portfolio system



The introduction of the portfolio system helps INHOLLAND University for a fast realisation of the educational concept.

By choosing one educational concept, one parallel route of implementation, School-exceeding demand-oriented education and one portfolio system the exchange between students, collaborated learning and intervision will be better facilitated.

Primarily the use of portfolio will be implemented to support study career accompaniment.

6/45

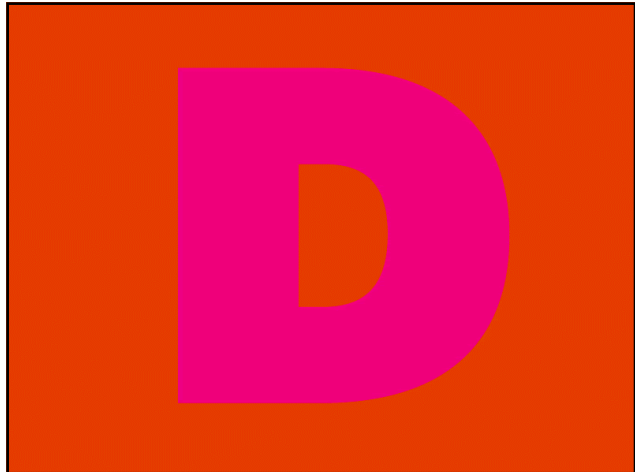
Expectations for 2006



INHOLLAND University expects for 2006:

- realisation of the educational concept in all 15 Schools;
- use of portfolio by all 40,000 students;
- use of portfolio as a tool for coaching- and assessment-purposes;
- realisation of collaborated learning supported by the digital portfolio system.

7/45



Angela Smallwood – The role of the UK Progress file in widening participation to Higher Education in the City of Nottingham: a collaboration between City and University

Theme: ePortfolio and territories

Title of paper: Case Study: The role of the UK Progress file in widening participation to Higher Education in the City of Nottingham: a collaboration between City and University

Author's name and institution: Dr Angela Smallwood, University of Nottingham, UK

Email address: Angela.smallwood@nottingham.ac.uk

Background or context

Government is driving an expansion in numbers of students participating in Higher Education in the UK. New criteria for entry into Higher Education – criteria to do with aptitude and potential rather than formal academic qualifications - are being discussed and piloted. At the same time, Progress File materials are being made available to schools and colleges, and all universities are aiming to introduce Progress Files for undergraduates by 2005-06. Progress Files bring many general benefits, but the specific connection with widening participation and achieving continuity in lifelong learning and development is a substantial one.

At this point, the energies of many universities in the UK are fully absorbed by the process of introducing Progress Files internally, managing the associated change and developing appropriate technology. The University of Nottingham is one of a small number nationally to have introduced Progress File early, to have had its own web-based tool for a few years, with over 10,000 students and staff now using it. In partnership with the University of Newcastle, Nottingham worked on a UK government-funded project, 2000-2002, 'Making the Links', reaching out from Higher Education to link with developments in Progress Files for the schools sector and the demands for early-years Continuing Professional Development in the professions of Medicine and Education. See reports at: <http://www.internet-pars.ac.uk/docs> As part of this project, the University of Nottingham team carried out pilot work in schools in the City and County of Nottingham, exploring the potential for convergence between the two sectors in pedagogical practice and demonstrating the feasibility of transferring data from school Progress Files into the University's electronic Personal and Academic Records system (ePARs).

Building on that foundation, work is now beginning to pass data from the City of Nottingham Passport (web-based Progress File for City schools) into ePARs, to support transition for widening participation students and achieve continuity to support lifelong learning.

This forms part of a wider strategy to share electronic resources within the University with staff and students in local schools and colleges in the region, starting with students from the age of 13 years, identified as having the potential to progress to the University.

It also forms part of a national project 2003-2005, funded by JISC and led by Nottingham, within which a small consortium of UK universities will work with UCAS (the UK's Higher Education admissions service) both to enhance the package of learner information presented for transition into Higher Education and also to propose a

specification for interoperability, as a key contribution to building the infrastructure for lifelong learning within the UK.

The UCAS admissions process stands both at a key transition point in the individual's development and constitutes a major point of reference for education 16-19 in the UK, even for students not intending to progress to Higher Education. In technological terms, UCAS's electronic admissions system, opening up to ePortfolio agendas, stands at the interface with Universities' IT systems and provides a major incentive for client institutions to take strides interoperability. The content of a new interoperable, web-based admissions process for the UK has the potential to influence learning and development for students aged 14-19 in an educational and in a cultural sense; it also has a potential contribution to make to the onward development of Progress Files and ePortfolios for university students.

Objectives

- To explore with staff and students in UK schools, colleges and universities the scope of new learner information required, in the light of policy on widening participation, to complement the package of learner information traditionally presented at transition into Higher Education.
- To transfer personal development planning data for individuals between web-based tools in colleges and in the University of Nottingham, using interoperability standards
- To work with UCAS on the enhancement of the content of their admissions tool, in the light of understanding its potential influence culturally and use pedagogically in both the schools/colleges and university sectors.

Summary of results

A work in progress report would be made in 2004.

Conclusions and recommendations

A work in progress report would be made in 2004.

**Christopher Tan –
*ePortfolio Building through Student-Centered
Project Work in Learning Communities***



ePortfolio 2003
1st international conference on digital portfolio
9-10 October 2003, Poitiers France



**ePortfolio Building through Student-Centered
Project Work in Learning Communities**



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Sep 9, 2003





Outlines

- What is Knowledge Community (KC)?
- What is Project Learning?
- Current Practices in Project Learning
- Framework of Project Learning
- Pedagogical Framework of KC
 - Overview, Writing a Note
 - Thinking Types & Scaffolds
 - Key Words, Summary
 - Facilitation, Measure Learning Outcomes
 - Collaboration Model, Management Tools
 - Project Summary

What is Knowledge Community (KC)?

- KC: A Web-based collaboration tool that uses Computer Assisted Intentional Learning Environment (CSILE) for knowledge Construction
- Pedagogical R&D since 2000
- More than 60 schools (Primary, Secondary, University) in Hong Kong and Singapore use KC
- More than 5,000 students, 200 teachers, 10 faculty members have used KC
- Topics include:
 - Why are there twins?
 - How to build a company?
 - Life of Don Bosco
 - Chinese Culture: 24 seasons (中國文化之二十四節氣)
 - Air Pollution in HK
 - Essay Writing for Primary Students
 - Multimedia Anchored Instruction



What is Knowledge Community (KC)?

Usage of KC:

- Project learning
- Problem-based learning
- Thesis supervision
- Research on online collaborative learning
- E-Mentoring

What is Knowledge Community (KC)?

Important Projects / Results

1. Learning Community: Changing Culture in Primary School), 2000-2001
6 schools, 1200 students, 40 teachers in Hong Kong
2. 3-I Project Learning (Interdisciplinary, Interschool, Internationally)
(<http://www.3iproject.net>), 2003-2004
4 schools, 800 students, 20 teachers in Hong Kong
3. Student-Centered Project Work (Singapore)
(<http://eduweb.nie.edu.sg/projects/sclearn>), 2002 - 2005
36 schools, 3000 students, 90 teachers in Singapore

→ Let's see how KC is used in Project learning

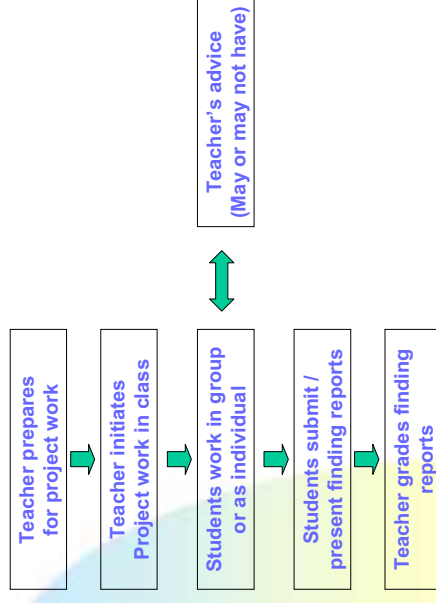
5

What is Project Learning?

- important learning process recognized by educators
- break away from the compartmentalization of knowledge and skills
- interdisciplinary (跨學科): cut across subjects
- interconnectedness of students' learning
- collaboratively, to think critically, creatively and independently and to communicate their findings
- an authentic form of learning
- prepares students for demands of workplace

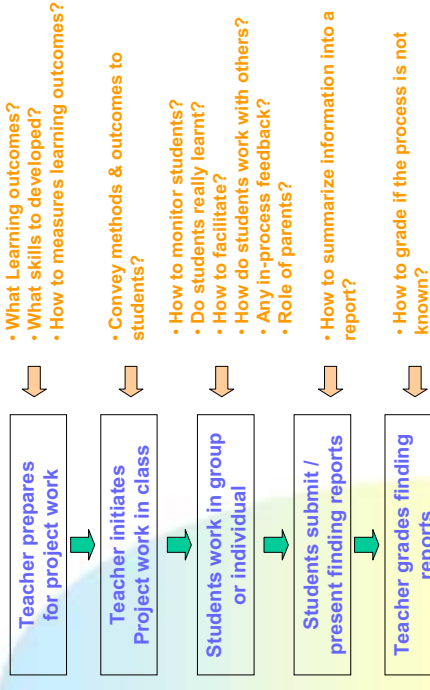
6

Current Practice in Project Learning



7

Issues of Current Project Learning?



8

Issues of Current Project Learning?

Other issues

- What skills / training do teachers need?
- How do students know they are learning the correct things?
- How to integrate IT into project learning?
- Besides individual and group project, any other collaboration model? (E.g. overseas collaboration)
- How to manage project resources?

9

Framework of Project Learning

Domain	Learning Outcomes	Skills developed
Knowledge Application	<ul style="list-style-type: none"> • Search, filter, categorize, digest data • See relevance & interconnectedness • Apply & transfer knowledge • Understanding, confirming 	<ul style="list-style-type: none"> • Exploration • Investigation • Analysis & Creativity • Perception • Application
Communication	<ul style="list-style-type: none"> • Communicate knowledge & ideas 	<ul style="list-style-type: none"> • Sharing, listening • Presenting
Collaboration	<ul style="list-style-type: none"> • Work with other members 	<ul style="list-style-type: none"> • Discussion • Working on other's idea • Helping others
Independent Learning	<ul style="list-style-type: none"> • Plan & monitor his/her own work • Know when to seek help 	<ul style="list-style-type: none"> • Planning & management • Self motivation

[Source: Singapore MOE, 1999]

10

Pedagogical Framework of KC: Overview

Why are there twins?



How a baby is formed? How twins are formed? Any animal twins?

- A Forum represents a key area of the project
- Notes are contributed by students & teachers in every forum
- Every note has a title, a Thinking Type, and many scaffolds

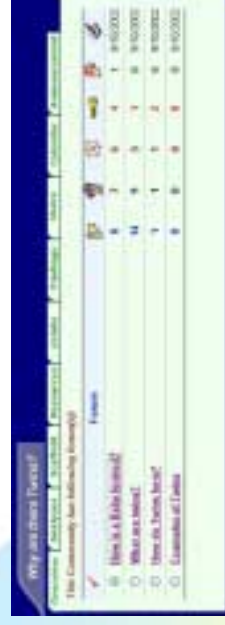
[A Theory] think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM

[Evidence] think we need 2 things *Spem* and *ovum* **[Evidence]** but I do not know how!

11

Pedagogical Framework of KC: Overview

Example of project & Forums

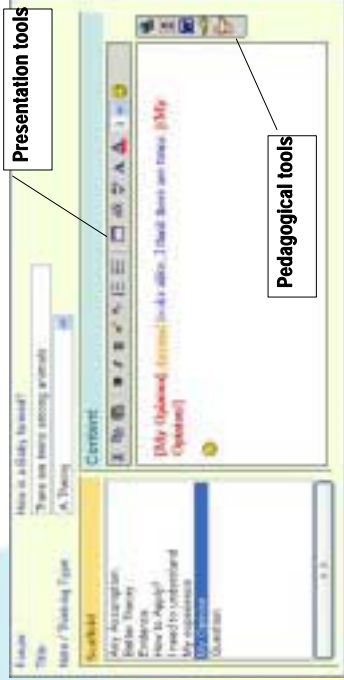


- Crafting of meaningful forums can be done together with students using tools for mind or concept map

12

Pedagogical Framework of KC: Writing a Note (筆記)

- Note is an area for student to express their findings, idea etc
- Must specify **Thinking Type** with **option for Scaffolds**
- Presentation tools: Copy, Cut & Paste, Insert table, font color etc
- Pedagogical tools: Insert picture, label key word, cross-reference, Document, hyperlink.



Demonstration on KC

Pedagogical Framework of KC: Thinking Types & Scaffolds

Thinking Type & Scaffold are different for different project nature. E.g.

Topic	Thinking Type	Scaffold
Why are there twins?	A Theory	Key Points Author How to apply Source
How to appreciate Music?	A sense of feel	Excitement Relaxation Personal touch Enjoyment
How to build a bridge?	A Tool	Purpose How to operate Training needed Effectiveness ...

Pedagogical Framework of KC: Thinking Types & Scaffolds

Thinking Types & Scaffolds guide students to learn and express in a disciplined way.

- Thinking Type represents main thought of a note
- Scaffolds further define the Thinking Type

Thinking Type	Scaffold
A Theory	Key Points Author How to apply Source

Teachers define Thinking Types & Scaffolds



[A Theory] think we need 2 things by Pak Yin 10/9/2002 9:04:28 PM

[Evidence] think we need 2 things *Spem* and *orum* [Evidence] but I do not know how!

Pedagogical Framework of KC: Facilitation

Teachers facilitate student's learning through **Group Portfolio**:

- Overview of entire class contribution and performance
- Analyses: Monitoring the process of project learning
- Respond to each student's note

Notes created	Key word used	Scaffold used	Notes read	Cross-reference	Summary	Picture used
1	Eddy Lee					
2	Grand					
3	John Lee					
4	Bartholem Lu					
5	Ray Yip					
6	Blow Lee					
7	Mr. Sam					
8	Pak Yik					
9	Stanley Ho					
10	Stanley Ho					
11	Stanley Ho					
12	Stanley Ho					
13	Tracy Wong					
Total	17	27				

Pedagogical Framework of KC: Facilitation

Teachers facilitate student's learning through **Individual Portfolio**:

- Study the thinking pattern of each student
- Provide just-in-time feedback to student and parents
- Example: know what each student's thinking and what they are **NOT** thinking of.

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Pedagogical Framework of KC: Measure Learning Outcomes

While students and teachers are participating forum discussion, KC is generating analyses on **Learning Outcomes** or **Project Portfolio**.

- Example:
 - 2 Theories were discovered in forum 1, 3 theories in forum 2
 - 6 Questions were raised in forum 2

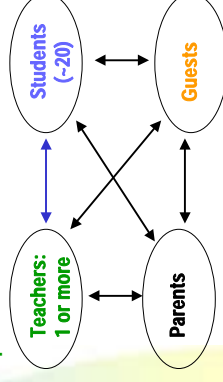
Pedagogical Framework of KC: Collaboration Model

Traditional collaboration models:

- Group of 3-6 from the same class
- Or individual project
- 1 teacher to ~35 students (or 6 groups)

Collaboration models using KC:

- Variety of models possible

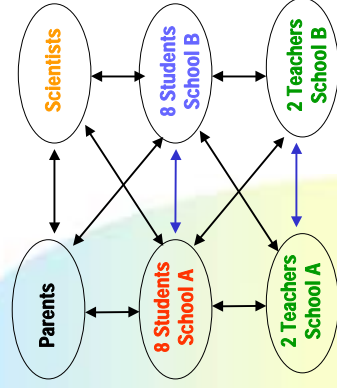


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Pedagogical Framework of KC: Collaboration Model

Collaboration models using KC: Why are there twins?

- Primary 5 students from 6 schools



Role of Parents

- Informed of this project and came for an orientation meeting
- Help kids to understand the searched materials

Role of scientists

- Help to answer questions

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Pedagogical Framework of KC: Collaboration Model

Collaboration models using KC: 若望鮑思高神父的生平 Life of Don Bosco

- 3 classes of primary 6 students from 1 school

Class A	Class B	Class C	Community
Group 1 (5)	Group 1 (5)	Group 1 (5)	Childhood 若望鮑思高的童年
Group 2 (5)	Group 2 (5)	Group 2 (5)	Childhood 若望鮑思高的童年
Group 3 (5)	Group 3 (5)	Group 3 (5)	Childhood 若望鮑思高的童年
Group 4 (5)	Group 4 (5)	Group 4 (5)	Youth 若望鮑思高的青年時期
Group 5 (5)	Group 5 (5)	Group 6 (5)	Youth 若望鮑思高的青年時期
Group 6 (5)	Group 6 (5)	Group 6 (5)	Adulthood 若望鮑思高的成年時期
Group 7 (5)	Group 7 (5)	Group 7 (5)	Adulthood 若望鮑思高的成年時期

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Pedagogical Framework of KC: Management Tools

• Resource areas

- Facilitators upload web links, MS Documents for reference
- Students can view or download

• Reflection (反思) Area

- Facilitators design questions for reflection
- Students fill in personal reflection
- Facilitators analyze students' reflection

• Finding Reports

- Students submit individual or group reports

• Management Area

- Calendar to manage project timetable
- Announcements to all users

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Pedagogical Framework of KC: Project Summary

Project summary comes in few ways:

- Students can group all summaries into a finding report
- Ask students to present their findings in class
- Ask students to write reflection, questions like:
 - What task did I have to complete?
 - How did I go about completing them?
 - What have I learnt?
 - How do I express my idea to others?
 - What is my relationship with others?
 - What have I accomplished?
 - What difficulties did I faced?
 - How do the project applied to my life?
 - ...



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Pedagogical Framework of KC: Student Portfolio

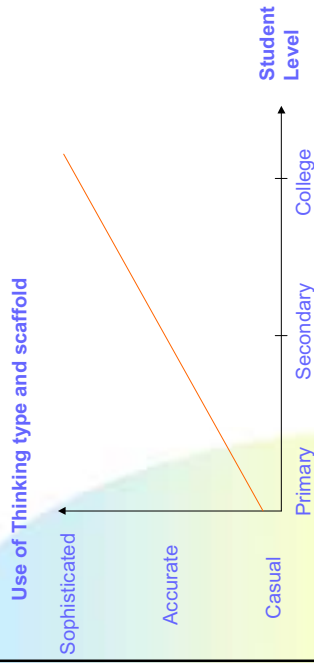
The screenshot displays a digital student portfolio with several entries. Each entry includes a title, a description of the work, and a reflection. The entries are:

- Assignment 1: The Power of the Written Word** - A reflection on the importance of writing in the 21st century.
- Assignment 2: The Power of the Written Word** - A reflection on the importance of writing in the 21st century.
- Assignment 3: The Power of the Written Word** - A reflection on the importance of writing in the 21st century.
- Assignment 4: The Power of the Written Word** - A reflection on the importance of writing in the 21st century.

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Strategic use of Thinking Type & Scaffold

- Experience from students

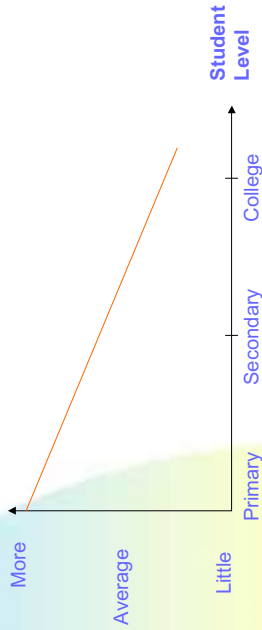


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Strategic use of Thinking Type & Scaffold

- Implication 1

Education and encouragement on Use of Thinking type and scaffold



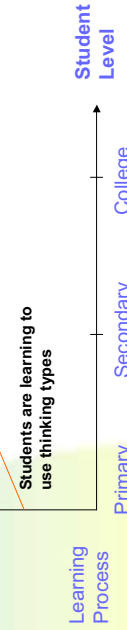
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Strategic use of Thinking Type & Scaffold

- Implication 2

Emphasis in Facilitation

Learning / collaboration outcomes



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Designing Learning Outcomes, Thinking Type & Scaffold

Compare the following sets of Learning Objectives

Case 1:

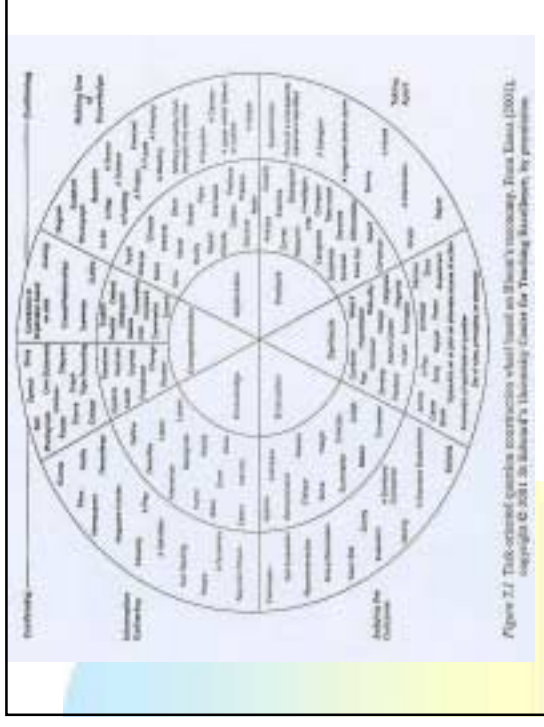
- After doing this project, you should be able to:
1. Describe what air pollution is;
 2. Write a report to explain what air pollution is;
 3. Know the polluted spots in Hong Kong;
 4. State what people says about pollution;

Case 2:

- After doing this project, you should be able to:
1. Explain what air pollution is;
 2. Measure air pollution;
 3. Investigate the reasons for pollution;
 4. Identify polluted spots in Hong Kong;
 5. Make suggestion to government; and
 6. Develop solutions to solve he problem;
 7. ...

Which set is better, why?

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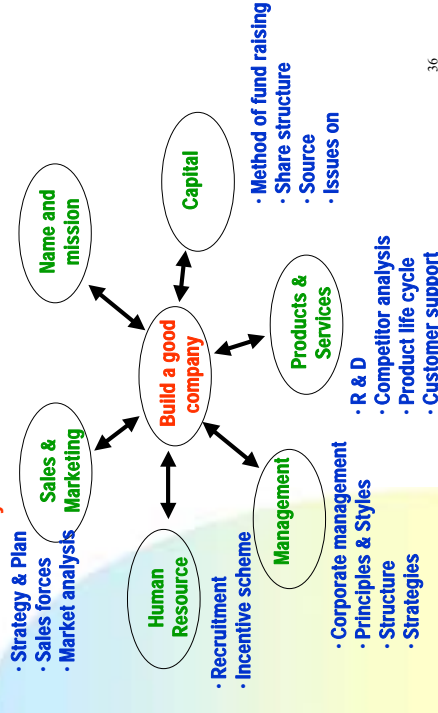
Strategic use of Thinking Type & Scaffold

- Bloom's Taxonomy 教學目標分類法

範疇 Domain	思維分類 Thinking / Knowledge Type
知識應用 Knowledge Application	<ul style="list-style-type: none"> • Theory (理論篇), Proof (證據), My Estimation (我估計是) • New Thought (新思想), How to Apply (如果應用) • My Classification (我的分類是...), Example (例子篇) • Significance, Illustrate with Picture (圖解說明)
交遇 Communication	<ul style="list-style-type: none"> • I Agree (我同意), I do not agree (我不同意) • My Suggestion (我的建議) • Question (發問篇), My Understanding (我對你的理解) • Elaborate (詳細說明), Clarify (請講清楚)
協作 Collaboration	<ul style="list-style-type: none"> • Build on your idea (補充你的建議), • Connected idea (與此有關的是...) • Illustrate on your point (由你的理論再...)
自我學習 Independent Learning	<ul style="list-style-type: none"> • Analysis (我的分析是...), My Summary (我的結論是...), • My Design (我的設計是...), My Evaluation (我的檢討是...) • My Solution (我的方案), My Comparison (我的比較) • My Investigation (我的調查是...)

Strategic use of Thinking Type & Scaffold

- Bloom's Taxonomy



Strategic use of Thinking Type & Scaffold

- Bloom's Taxonomy

You can design your thinking types and scaffolds according to Bloom's taxonomy.

知識應用 Knowledge Application	Thinking / Knowledge Type & Scaffold
	<ul style="list-style-type: none"> Sales & Marketing <ul style="list-style-type: none"> –Strategy & Plan – Sales forces – Market analysis Human Resource <ul style="list-style-type: none"> –Recruitment – Incentive scheme

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Assessment: Measure the Learning Outcomes with Rubrics

LO	Masterful	Skilled	Basic
理論篇 (knowledge)	<ul style="list-style-type: none"> Good explanation with supported evidence 	<ul style="list-style-type: none"> Give clear explanation with own opinion or examples 	<ul style="list-style-type: none"> Give simple explanation with little own opinion
如果應用 (Knowledge Application)	<ul style="list-style-type: none"> Should good understanding of knowledge Apply in creative and flexible way 	<ul style="list-style-type: none"> Apply well with knowledge in limited way Apply in familiar context 	<ul style="list-style-type: none"> Apply with help from teachers or friends or laid out guidelines
我的分析、檢討 (Analysis & Evaluation)	<ul style="list-style-type: none"> Become little expert Distinguish the differences between opinion, argument and fact 	<ul style="list-style-type: none"> Evaluate independently Aware of differences between opinion, argument and fact 	<ul style="list-style-type: none"> Need help from others's analysis Not aware of differences between opinion, argument and fact
我的理解 (Comprehension)	<ul style="list-style-type: none"> Formulate simple questions based on information With search techniques Can tell the source is relevant 	<ul style="list-style-type: none"> Formulate simple questions based on information With search techniques May not tell the source is relevant 	<ul style="list-style-type: none"> Cannot search information independently Cannot tell the source is relevant Form questions with assistance

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Assessment: Measure the Learning Outcomes with Rubrics

LO	Masterful	Skilled	Basic
我不同意 (Communication)	<ul style="list-style-type: none"> Good reasons with facts Point out new direction 	<ul style="list-style-type: none"> Give reasons with supportive facts 	<ul style="list-style-type: none"> Give reasons for disagreement
我的方案 (Synthesis)	<ul style="list-style-type: none"> Create new solution in a good format Combine new information with old knowledge Able to summarize information 	<ul style="list-style-type: none"> Create new solution in a good format Combine new information with old knowledge Struggle to summarize information 	<ul style="list-style-type: none"> Struggle to create solution Combine new information with old knowledge Summarize information with assistance
補充你的建議 (Collaboration)	<ul style="list-style-type: none"> Understand what other said Give own proposal in a creative way 	<ul style="list-style-type: none"> Understand what other said Give own opinion with facts 	<ul style="list-style-type: none"> Understand what other said Give own opinion
Presentations on skills	<ul style="list-style-type: none"> ? 	<ul style="list-style-type: none"> ? 	<ul style="list-style-type: none"> ?

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Assessment: Using the Rubrics

Project Learning Skills Rubric			
Name: Peter Lee	Score: 9	Grade: B+	
LO	Masterful (3)	Skilled (2)	
理論篇 (knowledge)	<ul style="list-style-type: none"> Good explanation with supported evidence 		<ul style="list-style-type: none"> Apply with help from teachers or friends or laid out guidelines
如果應用 (Knowledge Application)			
我的分析、檢討 (Analysis & Evaluation)		<ul style="list-style-type: none"> Evaluate independently Aware of differences between opinion, argument and fact 	
我的理解 (Comprehension)	<ul style="list-style-type: none"> Formulate simple questions based on information With search techniques Can tell the source is relevant 		

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References

- Fogarty, Robin. (1990). *Designs for Cooperative Interactions*. IR/Skylight Training & Publishing Inc.
- Gray, W.A. (1989). *Situation Mentoring: Custom-designed Planned Mentoring Program*, Mentoring International, Vol. 3 No. 1, 1989.
- Krajcik, Blumenfeld, Maxand Soloway (1998). "Scaffold Technology Tools to Promote Teaching and Learning in Science" in *Association for Supervision and Curriculum Development Yearbook: Learning with Technology*. Ed. Dede, C., Alexandria, Virginia, 1998.
- Moursund, D. (1999) *Project-based Learning Using IT*, ITSC
- Scardemalia & Bereiter (1992). "An Architecture for Collaborative Knowledge Building" in *Computer-based Learning Environments & Problem-solving*. Ed. De get-Verlag Pp. 44-46
- Tan, C. (2003). *E-Mentoring Through Knowledge Community*

Linda Tomos & Rheinallt Jones, Careers Wales Online – *E-Portfolio Developments in Wales*

Careers Wales Online

Virtual Guidance Services for Everyone in Wales

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The Context

Wales is a nation of c.3m people with 21% of the population bilingual in Welsh/ English. (Welsh is a Celtic language and is one of the oldest languages still spoken in Europe). Although there is a low unemployment rate of 4.6%, 75% of the country is eligible for E.U. Objective 1 status. There is, therefore, an important imperative to improve the skills of the population encouraging the development of modern technology-based industries and thereby improving GDP.

The National Assembly for Wales was established in 1999 and a series of strategic plans have been produced guided by 2 principles, equality of opportunity and sustainable development. A new strategic plan for Wales – “*Wales a Better Country*” was published in September 2003.⁷ This builds upon previous plans including the lifelong learning strategy, “*The Learning Country*” (2001)⁸. The key themes for the strategy are,

- £ Essential skills
- £ Lifelong learning
- £ Applying knowledge
- £ Skills for business
- £ Learning communities

The national ICT strategy, Cymru Ar Lein⁹ has invested £150m in a broadband network linking all educational establishments, libraries and community ICT centres, providing free Internet access. This integrated approach to policy making is intended to maximise existing resources through each partner taking responsibility for delivering their contribution to the national plan.

Careers Wales was established in 2001 to deliver all age guidance using national standards in a local context to all, except university students. Services are delivered by 7 companies employing c.900 staff, many of whom are guidance professionals. The *Learning Country* tasked Careers Wales to develop effective ICT services to improve access to guidance and help develop a culture of continuous reflection on an individual's skill needs. In 2000, the **Careers Wales Association** (representing all 7 companies and their Directors)

⁷ <http://www.wales.gov.uk/themesbettercountry/index.htm>

⁸ <http://www.wales.gov.uk>

⁹ <http://www.cymruarlein.wales.gov.uk>

received funding from the Welsh Assembly Government to design and implement a virtual guidance service for all including an e-portfolio, Progress File Online.

Design Concept

Careers Wales Online (CWOL) has been developed over a 2 year period by **Careers Wales** involving guidance experts, ICT specialists, software developers (Illumina Consortium¹⁰) and strategic partners in Wales. The web portal includes a core e-portfolio product, **Progress File Online**, as well as multimedia bilingual content developed in a dynamic journalistic style adapted for a variety of client groups. Progress File Online is derived from a text-based product developed and tested by the U.K. Department for Education and Skills¹¹. The bilingual online version includes self assessment quizzes, animated interview games, tutorials, templates and presentation folders. The results from all the interactive diagnostic texts are stored, and can be used to populate CVs., action plans etc. Data from information services such as *Learning Choices*, the learning opportunity database, job vacancy services and occupational information will also be incorporated within Progress File Online.

The intention is for every pupil in Wales to register and open their Progress File Online at 14 years (although services are planned for pupils in primary school, particularly to promote entrepreneurial skills). The service will also be available to everyone living in Wales via the Careers Wales Online website (postcode information from the user's address is used to validate online registration). This e-portfolio is available to the individual for life. A major design challenge is to produce an intuitive product which can engage with users of differing ages and backgrounds, encouraging them to revisit and update the information they have stored. A web builder module, for example, is designed to stimulate users with low literacy levels to express themselves through constructing simple web pages from text and images available via an image bank.

Implementation Plan & Timescales

A working prototype has been produced which will be piloted from November 2003 until March 2004 with all client groups. The full service will be implemented from April 2004 following any necessary revisions to the software. The content management system allows bilingual content to be added, amended and deleted by staff all over Wales with a central quality assurance check prior to publishing on the website. An awareness training programme forms part of the implementation plan for mediated access.

CWOL System Management

The projected size of the management team is 6,

- š Manager
- š Content officer
- š ICT officer
- š Translator
- š Quality officer
- š Administrative officer

Staff will take responsibility for maintaining the interactive services, liaising with Careers Wales staff and partners, quality checks, management information system (MIS) reporting, hosting services (with potentially up to 3m accounts in the future), producing bilingual content and identifying future refinements. Individual career companies, (th 7 companies cover geographical areas of Wales) will employ dedicated Careers Wales Online co-ordinators, particularly to encourage the creation of dynamic content. Marketing will be supported by Careers Wales marketing services and other national players.

Careers Wales Online will work closely with the national free telephone help line, *learndirect*, also managed by Careers Wales, which provides information and advice on lifelong learning and guidance issues from 4 call centres. Careers Wales Online enables *learndirect* to extend access routes from telephone delivery to web-based services. *learndirect* manages the Wales database of learning opportunities, *Learning Choices* accessed via Careers Wales On line.

¹⁰ <http://www.illuminadigital.co.uk>

¹¹ <http://www.dfes.gov.uk>

Future Development

A Credit and Qualifications Framework for Wales was launched in July 2003. Careers Wales Online is an important delivery tool for the Framework. The aim of the Framework is to '*generate flexible points of entry and ladders of progression*' for lifelong learners, encouraging them to transfer their skills and knowledge between careers paths and providers. Employers will have '*a much clearer picture of what employees know and can do.*' The Framework is underpinned by a **Credit Common Accord** to ensure that appropriate quality assurance measures are used to award a credit rating for formal and informal learning based on a notational 10 hours of learning time for all learning activities. Registered users of Careers Wales Online will be able to hold their **Credit Transcript** with their Progress File Online. Eventually, it should be possible to receive validated online 'certificates' from awarding bodies dynamically checked so that CVs will include verified information on qualifications and credits achieved.

New Technology Platforms: SMS text messaging services and chat rooms are included in the design of Careers Wales Online. There is already evidence that some client groups e.g. disaffected youth clients, respond significantly better to communication via SMS text messaging than conventional means. An event chat room will be held shortly, organised with the national broadcaster BBC Cymru: Wales, where Colin Jackson, Wales' world record athlete will discuss careers in sport and entrepreneurship with pupils in Welsh schools. It is also envisaged that Careers Wales Online will be adapted for access via digital television within 3 years. Guidance interviews held via web-based video conferencing will also be offered.

Key Issues for Careers Wales Online

The following imaginary comments represent some probable future feedback on the current system.

"I don't need guidance, it's all on the website"

Careers Wales Online needs to successfully manage a culture change within the delivery of guidance services in order for existing services to effectively deliver the complex and comprehensive web-based service being developed. Important professional issues relating to the delivery of both mediated and unmediated guidance are raised by the new service.

"I've left school, I don't need my Progress File anymore"

Engaging users beyond 16 when compulsory schooling ends and making it easy for users to visit and update their Progress File Online is a major consideration for the service. The potential complexity of information available on the website raises issues of simple navigation and engaging the interest of a bilingual audience.

"This is not our product, we'll develop our own website"

Careers Wales has the challenge of persuading other strategic organisations to work in partnership to deliver interactive services which can be stored in the user's Progress File Online. Support is provided through the Welsh Assembly Government lifelong learning strategy.

"We'll have to start again before long with a new system"

Identifying robust and agile technical systems which enable seamless access and which are capable of migration to new technology platforms is also an important consideration. The commitment from Careers Wales to host Careers Wales Online is unlimited by time. The three-layer technical model adopted with a web browser, middle business logic and back end databases provides a flexible approach, as does the use of industry standard protocols.

"It's too complicated and text-based for my clients"

Developing a version more suited to users with special needs is an immediate priority. Although the current system meets U.K. government guidelines, more work is required to research the needs of users with physical disabilities and learning difficulties.

"We need to develop policy based on evidence and measuring impact"

Careers Wales is committed to ensuring that Careers Wales Online is a focal point of the national lifelong learning strategy and the national skills strategy, demonstrating the importance of delivering an e-portfolio based on learning outcomes for life.

A CWOL working prototype will be demonstrated at the conference